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AN ASSESSMENT OF THE SUPPLIES OF NATURAL GAS AND FUELS FOR GENERATING ELECTRICITY IN OHIO, JULY 1982 - JUNE 1983

PRESENTED TO
GOVERNOR JAMES A. RHODES,
THE OHIO LEGISLATURE, AND
THE PUBLIC UTILITIES COMMISSION OF OHIO

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THE OHIO DEPARTMENT OF ENERGY
FRANK A. HILDEBRAND, DIRECTOR

An Assessment of the Supplies of Natural Gas
and Fuels for Generating Electricity in Ohio
from July 1982 - June 1983

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AN ASSESSMENT OF THE SUPPLIES OF NATURAL GAS AND FUELS FOR GENERATING ELECTRICITY IN OHIO

SUMMARY

Section 4905 of the Ohio Revised Code requires that on July 1 and November 1 of each year Ohio's natural gas and electric utilities report forecasts of their projected fuel supply and demand for the ensuing twelve-month period. The statute further requires that the Ohio Department of Energy (ODOE) review each report and compare it to the Department's independently generated forecasts. This report represents ODOE's assessment of these individual forecasts and provides an aggregate forecast of Ohio's natural gas and electricity supply/demand outlook for the period July 1, 1982 through June 30, 1983.

Electricity

For the twelve-month period ending in May 1982, consumption of electricity in Ohio was 3.8 percent lower than during the previous twelve-month period. Residential sector demand decreased 0.3 percent, commercial sector demand increased 2.6 percent, and industrial sector demand declined 6.6 percent. Ohio Department of Energy forecasts for the twelve-month period ending June 1983 indicate that residential sector consumption will decline 1.3 percent. Commercial sector consumption is forecast to increase by 2.2 percent; and industrial sector consumption is forecast to decline 10.7 percent.

The projected supply of coal and oil is adequate under normal circumstances.

Natural Gas

Following the passage of the Natural Gas Policy Act of 1978, new customer hookup bans were lifted from all Ohio utilities by the end of 1979. As a result, the number of natural gas customers in the residential, commercial, and industrial sectors has increased in 1980, 1981, and 1982. However, natural gas utilization levels in residential, commercial, and industrial sectors have continuously declined during the same period of time. This situation is due mainly to the impact of the recession of 1980-82, the rapid increases in natural gas prices since 1978, and the rapid increases in petroleum prices that followed the Iranian crisis.

The experience of the past three years clearly indicates that declining levels of natural gas utilization in Ohio are no longer due to curtailments of customer base allocations to apportion inadequate supplies. The close to four-fold increase in the price of natural gas between 1972 and 1980, as indicated in Table 19, and the eight-fold increase in the price of imported crude oil during the same period of time, have expanded the share demanded by energy expenditures in the budget and balance sheets of U.S. households and industry. This increase has been of such magnitude that the maintenance of minimal customary level of discretionary expenditures on non-energy items has required consumers to make continuing reductions in absolute levels of energy consumption. In other words, energy consumers are simply being priced out of the market, or, at least, out of their more costly habits. This is exactly what is expected to happen as the price mechanism undertakes the process of allocating a scarce resource.

However, in actual practice, there is always a question of information and implementation costs, and a consequent problem of public welfare, involved under these circumstances. It is not clear that the customers who are being forced to reduce their energy consumption levels will be able to do so through the adoption of the most efficient and effective measures that could be available and feasible for them. This is the case because the information, training, or costs involved may exceed consumers' capabilities. The provision of conservation services, information, or programs by a single public authority can, however, improve public welfare, and expedite greater conservation, at a net gain to consumers who would be the beneficiaries of such services.

As long as energy prices outstrip the growth in real per capita income, there is reason to believe that energy consumption in general, and natural gas consumption in particular, will not exhibit sustained upward trends similar to those observed in the sixties. Significant fluctuations in sectoral natural gas consumption levels may be expected in response to severe climatic conditions, or in response to fluctuations in the general unemployment levels in Ohio.

In spite of the very cold winter of 1982, we expect that residential and commercial natural gas requirements will be slightly below their 1981 levels for the calendar year 1982. Industrial requirements, however, will certainly decrease to new lows for there is no reason to believe that the unemployment rate in Ohio will fall below that of 1981 in 1982.

Projected natural gas supplies for 1982 should be sufficient even in the case of a 10 percent colder than normal winter.

INTRODUCTION

This report has been prepared by the Ohio Department of Energy pursuant to Section 4905.14(E) of the Ohio Revised Code. The statue requires the Department of Energy to provide a summary, analysis and recommendations based on the Ohio public utilities' energy supply and demand projections for the twelve-month period beginning July 1, 1982. In accordance with Section 4905.14(D), a copy of each utility's July forecast was submitted to the Governor, Clerk of the Senate, the Legislative Clerk of the House of Representatives, and the Public Utilities Commission of Ohio on July 10, 1982. The utilities' forecasts and historical data are the primary input for this report. Several other sources of information have also been used, including historical energy data developed by the Ohio Department of Energy, federal energy reports, and publications from the American Gas Association and the Electric Power Research Institute. A substantial and successful effort has been undertaken to develop a comprehensive data base and at the same time maintain the ability to provide timely analyses and forecasts.

Objectives

In the preparation of this report, the Ohio Department of Energy set forth the following major objectives:

1. To provide an adequate historical, energy-related data profile for identification of current status and future trends;
2. To provide analysis and interpretation of changes in energy supply and demand;

3. To provide an independent assessment of the adequacy of natural gas and electric energy supply for the upcoming twelve months; and
4. If a potential deficiency between supply and demand is identified, to suggest a strategy for implementation in order to prevent or mitigate any interruption or curtailment of service.

The basis for the information to be evaluated is supplied in part by the reports filed with the Ohio Department of Energy, federal reports, and the research and analysis of the Ohio Department of Energy.

Temperature and Energy Consumption

Changes in the observed annual energy requirements of the three major consuming sectors may be explained by a variety of factors. Temperature is a variable which explains much of the observed variation. It is particularly significant in the residential and commercial sectors where, during summer and winter periods, the requirements for electricity and natural gas are used to maintain comfortable room temperatures.

Two indicators which measure temperature-sensitive energy requirements are heating degree days and cooling degree days. The daily mean temperature is obtained by adding together the maximum and minimum temperatures reported for the day and dividing the total by two. When the daily mean temperature is 65° F., the degree day is zero. Each degree of mean temperature below 65° F. is counted as one heating degree day. This indicator is convenient because the amount of heat required to maintain a certain temperature level is proportional to heating degree days.

The cooling degree days are defined similarly: each degree of mean temperature above 65° F. is counted as one cooling degree day. If the daily mean temperature is 65° F. or lower, the cooling degree day total is zero.

Since most homes and commercial buildings in Ohio are heated by natural gas, the reporting gas utilities are required to submit supply and demand forecasts under a normal winter scenario and a ten percent colder than normal winter scenario. In addition, the relationship between natural gas consumption and heating degree days is closely monitored by ODOE during the winter heating season (from November through March). Table 1 and Figure 1 show, for the past two heating seasons, population-weighted state heating degree day summaries. In addition, a normal heating degree day series, defined as the 30 year average of the years 1941 to 1970, is presented.

Rules and Requirements for this Report

The administrative rules and forecasting requirements (OAC 1151:1-4 and 1551:1-5) became effective November 1, 1978. The present forecasting reports submitted by electric and gas utilities are in accordance with these rules.

It is necessary to differentiate between state energy consumption and production totals and the reporting utilities' totals. This is because the municipal utilities, industrial facilities and the rural electric cooperatives are not required to file the semi-annual report. This difference is actually very small (estimated to be about 6 percent for the electricity figures and 1.7 percent for natural gas (excluding self-help gas).

Ohio Department of Energy Forecasts

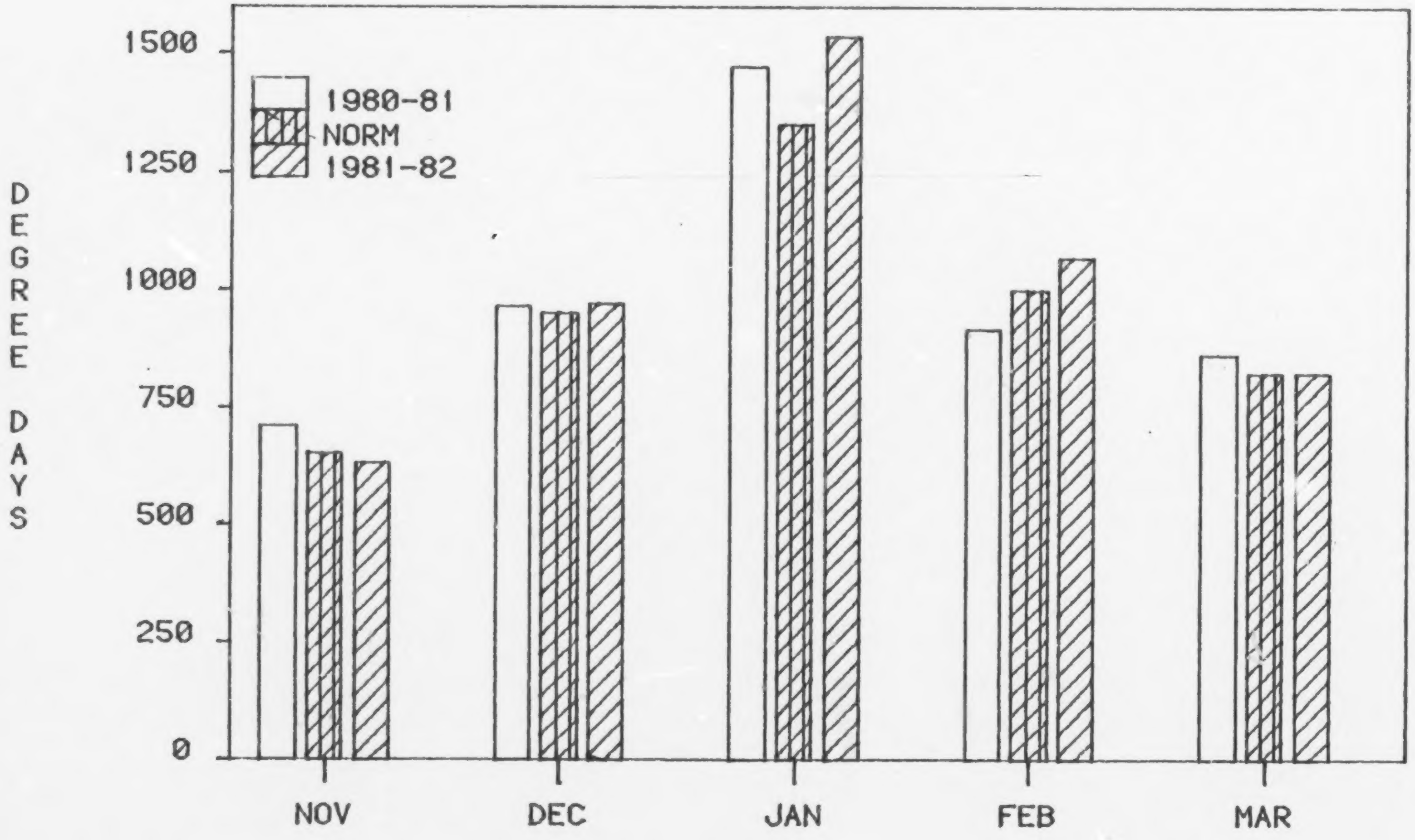
As part of its analysis, the Ohio Department of Energy makes independent forecasts to serve as validation checks. Early identification

Table 1. Population-Weighted State Degree-Day Summary for Ohio
November 1, 1981 to March 31, 1982

Week Ending Date	1981-1982			Norm			1980-1981		
	Weekly	Cumulative for Month	Cumulative from November 1	Weekly	Cumulative for Month	Cumulative from November 1	Weekly	Cumulative for Month	Cumulative from November 1
November 8	92	92	92	132	132	132	126	126	126
15	168	260	260	153	285	285	155	281	281
22	176	436	436	174	459	459	221	502	502
29	196	632	632	195	654	654	207	709	709
Deviation from Norm		-3.4%	-3.4%					8.4%	8.4%
December 6	196	196	828	216	216	870	177	177	886
13	238	434	1066	233	449	1103	182	359	1068
20	300	734	1366	245	694	1348	282	641	1350
27	237	971	1603	254	948	1602	325	966	1675
Deviation from Norm		2.4%	0.0%					1.9%	4.6%
January 3	242	242	1845	259	259	1861	273	273	1948
10	306	548	2151	261	520	2122	389	662	2337
17	399	947	2550	262	782	2384	335	997	2672
24	303	1250	2853	261	1043	2645	244	1241	2916
31	285	1535	3138	307	1350	2952	232	1473	3148
Deviation from Norm		13.7%	6.3%					9.1%	6.6%
February 7	302	302	3440	259	259	3211	314	314	3462
14	330	632	3770	255	514	3466	293	607	3755
21	188	820	3958	247	761	3713	138	745	3893
28	246	1066	4204	236	997	3949	172	917	4065
Deviation from Norm		6.9%	6.5%					8.0%	2.9%
March 7	250	250	4454	221	221	4170	234	234	4299
14	NA	NA	NA	NA	NA	NA	NA	NA	NA
21	NA	NA	NA	NA	NA	NA	NA	NA	NA
28	NA	NA	NA	NA	NA	NA	NA	NA	NA
31	NA	824	5028	NA	822	4771	NA	861	4926
Deviation from Norm		0.2%	5.4%					4.7%	3.2%

Source: National Weather Service and the Ohio Department of Energy.

FIGURE 1. POPULATION-WEIGHTED STATE DEGREE-DAYS FOR OHIO WINTER HEATING SEASONS 1980-1982



SOURCE: OHIO DEPARTMENT OF ENERGY.

of severe conditions permits advanced planning to avert possible undesirable consequences.

The Ohio Department of Energy has the capability to forecast monthly demand by utility and for the state as a whole within a reasonable level of error (less than 5 percent in most cases). Such forecasts are based on historical month-by-month actual consumption for both electricity and natural gas and other appropriate variables such as population, income, and temperature data. As in any forecast, certain important socio-economic conditions are assumed in the Ohio Department of Energy forecasts. These assumptions are stated below:

1. Energy demand generally follows its historical consumption pattern.
2. Socio-economic changes are minimal in affecting demand for energy in the short run.
3. The observed level of conservation will remain in effect.
4. Other specific assumptions are stated where appropriate.

Overview of this Report

The rest of the report is divided into two parts: electric energy and natural gas. Materials contained in these two parts are, for the most part, parallel in arrangement. They contain: (a) a profile of reporting utilities; (b) historic sources of supplies/suppliers; (c) consumption history by sector, utility, and state; and (d) the utilities' forecasts and independent forecasts by the Ohio Department of Energy. For the purpose of better illustration, the data are frequently displayed graphically.

ELECTRICITY

This section is based on the July forecasts filed by nine major Ohio electric utilities. Two of these, Columbus and Southern Ohio Electric Company and Ohio Power Company, are subsidiaries of the American Electric Power Company. Since American Electric Power operates as a centrally dispatched, integrated distribution system, the report reviews forecasts of demand and fuel adequacy for the entire American Electric Power System. The Allegheny Power System is also a centralized power generation and distribution system, of which one subsidiary is Monongahela Power. Thus, the forecasts of eight utilities are presented in the report. They are:

1. Allegheny Power System (APS)
    - Monongahela Power
    - Other out-of-state utilities not subject to reporting.
2. American Electric Power Company (AEP)
    - Columbus and Southern Electric Company (C&SOE)
    - Ohio Power Company
    - Other out-of-state utilities not subject to reporting.
3. Cincinnati Gas and Electric Company (CG&E)
4. Cleveland Electric Illuminating Company (CEI)
5. Dayton Power and Light Company (DP&L)
6. Ohio Edison Company (and its subsidiary Pennsylvania Power)
7. Ohio Valley Electric Corporation (OVEC)
8. Toledo Edison Company

With the exception of APS, AEP, and OVEC, each of these is an investor-owned utility supplying electricity to residential, commercial, and industrial customers in its service area. The Ohio Valley Electric Corporation is a single-customer utility supplying power for the uranium enrichment plant at Portsmouth, Ohio. It also sells surplus generation to other electric utilities.

Source/Supplier of Fuel for Electric Generation

Fuels used in Ohio for electric generation include coal, oil, natural gas and nuclear fuel. At this time, nuclear fuel is not monitored by ODOE: all other fuels are monitored through the utilities' monthly reports. Tables 2 and 3 list coal and oil deliveries to power plants located in Ohio. The main sources of supply and/or suppliers of these fuels remain the same as in the last reporting period.

Coal deliveries to Ohio electric plants during the 1981-1982 heating season (November through March) increased 2.2 percent from the previous heating season, while deliveries of oil declined 78.6 percent. The steady decline in oil deliveries since 1980 is indicative of Ohio utility efforts to reduce reliance upon petroleum as a generating fuel.

Electric Generation by Type of Fuel

Coal is the main source of fuel for electric generation in Ohio, and its position is not expected to change in the foreseeable future. In 1981, 96 percent of total electricity generated in Ohio was from coal, a decrease of 1 percent from the previous year. Electricity generated by oil fell to a negligible 0.15 percent of total generation. Nuclear generated electricity accounted for four percent of electricity generated in the state in 1981, a significant increase over 1980. Nuclear generation was limited in 1980 by a shutdown of the Davis-Besse facility, triggered by the Three Mile Island accident.

Table 2. Source of Coal Supply to Electric Utilities
(Ohio Portion)
(In Thousand Short Tons)

Month	Coal Districts								
	1	2	3	4	6	7&8	9	Other	Total
1980									
January	----	210.9	27.0	2,202.8	327.2	1,140.8	131.5	316.8	4,357.0
February	----	136.3	46.9	1,872.3	500.9	964.9	100.1	216.8	3,838.2
March	----	200.4	34.8	2,114.1	126.9	1,485.5	94.6	356.6	4,412.9
April	----	254.1	44.7	2,096.0	215.9	1,216.8	66.1	200.8	4,094.4
May	0.1	165.1	49.0	2,225.2	270.1	1,252.5	125.4	167.8	4,255.2
June	----	158.4	56.5	2,111.3	291.9	1,501.7	159.0	165.4	4,444.2
July	----	151.3	47.1	1,932.9	173.1	892.3	72.8	201.3	3,470.8
August	----	182.6	78.8	2,164.6	261.6	1,295.8	115.1	242.1	4,340.6
September	----	217.5	78.7	2,124.4	275.2	1,286.4	81.5	118.3	4,182.0
October	----	202.1	95.1	2,164.6	265.1	1,388.9	103.4	56.1	4,275.3
November	----	161.5	107.6	1,958.0	261.1	1,094.6	38.8	155.8	3,777.4
December	----	212.4	103.7	2,070.7	233.1	1,130.3	73.3	251.9	4,075.4
Total	0.1	2,252.6	769.9	25,036.9	3,202.1	14,650.5	1,161.6	2,449.4	49,523.4
% of Total	0.0	4.5	1.6	50.6	6.5	29.6	2.3	4.9	
1981									
January	----	137.9	82.7	2,241.6	270.6	1,269.2	106.7	319.4	4,428.1
February	----	178.5	91.2	2,063.3	242.3	1,120.4	37.7	196.4	3,929.8
March	----	193.2	137.2	2,333.0	125.5	1,304.2	19.1	332.3	4,444.5
April	----	98.8	41.7	372.4	20.0	664.4	14.4	51.4	1,263.1
May	----	75.9	4.4	422.7	-----	753.8	1.5	-----	1,258.3
June	----	75.3	9.1	1,576.2	190.2	1,137.3	23.9	-----	3,012.0
July	----	157.6	63.6	2,247.1	242.7	874.4	42.4	238.6	3,866.4
August	----	174.5	76.0	2,351.3	361.9	1,191.5	49.9	376.7	4,581.8
September	----	171.6	30.8	2,386.8	296.3	985.4	124.7	289.0	4,284.6
October	----	201.0	21.6	2,648.6	346.2	1,161.1	71.3	276.4	4,726.2
November	----	170.5	12.1	2,504.1	307.9	1,101.0	91.4	241.1	4,428.1
December	10.9	135.5	28.1	2,309.2	120.0	835.9	215.3	483.3	4,138.3
Total	10.9	1,770.3	598.5	23,456.3	2,523.7	12,398.6	798.3	2,804.6	44,361.2
% of Total	0.0	4.0	2.0	52.9	5.7	28.0	1.8	6.3	
1982									
January	----	128.4	23.9	2,019.3	222.7	1,089.9	103.7	198.7	3,788.1
February	----	123.0	19.4	2,137.4	388.2	1,163.9	51.2	191.7	4,074.8
March	----	173.4	27.9	2,303.4	382.9	1,489.6	56.7	237.9	4,671.8

District

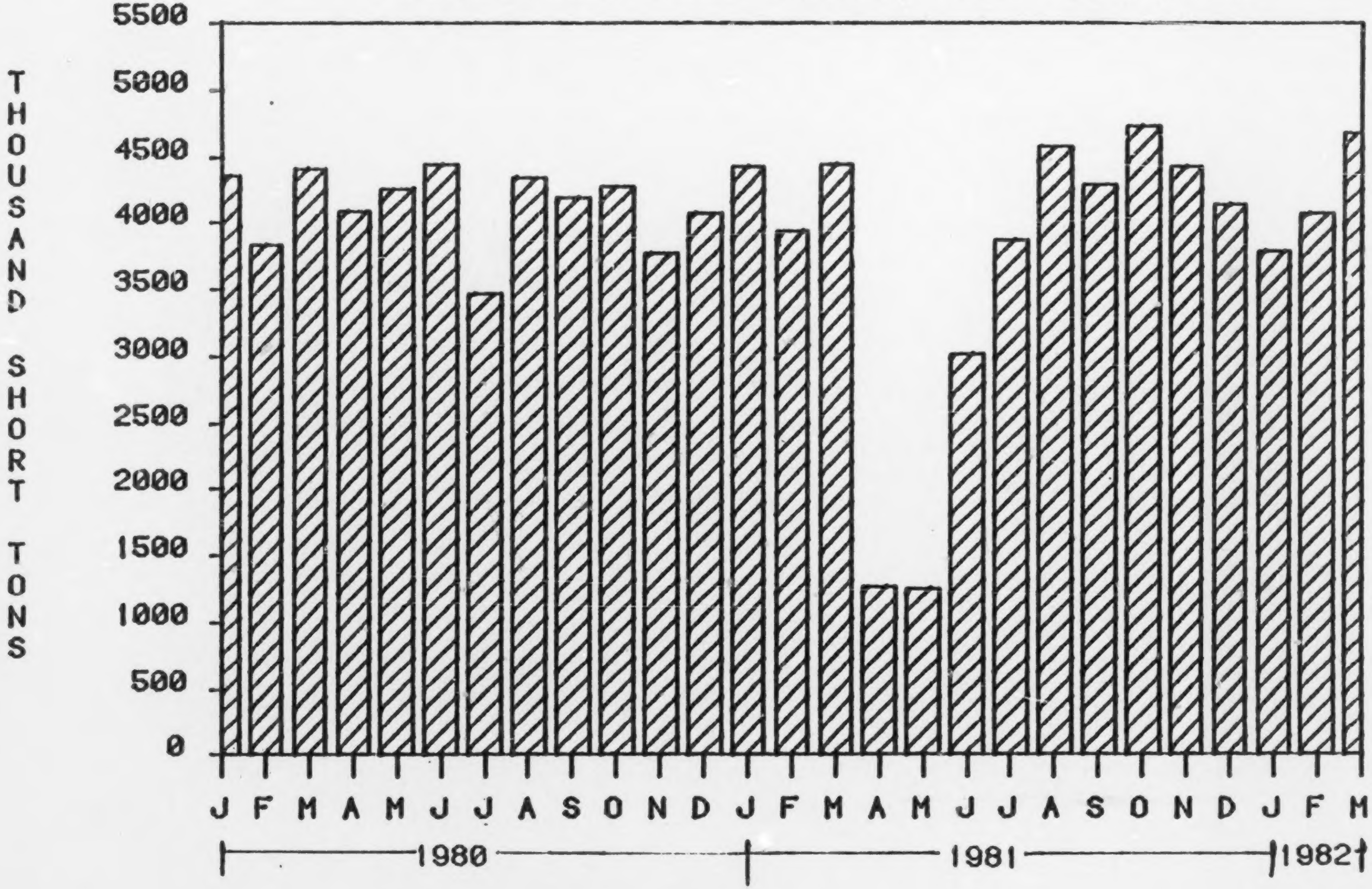
1. Eastern Pennsylvania
2. Western Pennsylvania
3. Northern West Virginia
4. Ohio
6. Panhandle in West Virginia
7. Southern No. 1 (in West Virginia and Virginia)
8. Southern No. 2 (in West Virginia, Virginia and Eastern Kentucky)
9. Western Kentucky

Other - Primarily from Wyoming and Utah

(For details, see Keystone Coal Industry Manual, 1981 by McGraw-Hill.)

Source: Ohio Electric Utilities' FPC Form 423 and the Ohio Department of Energy.

FIGURE 2. MONTHLY COAL DELIVERIES TO POWER PLANTS IN OHIO
THOUSAND SHORT TONS, JANUARY, 1980 - MARCH, 1982



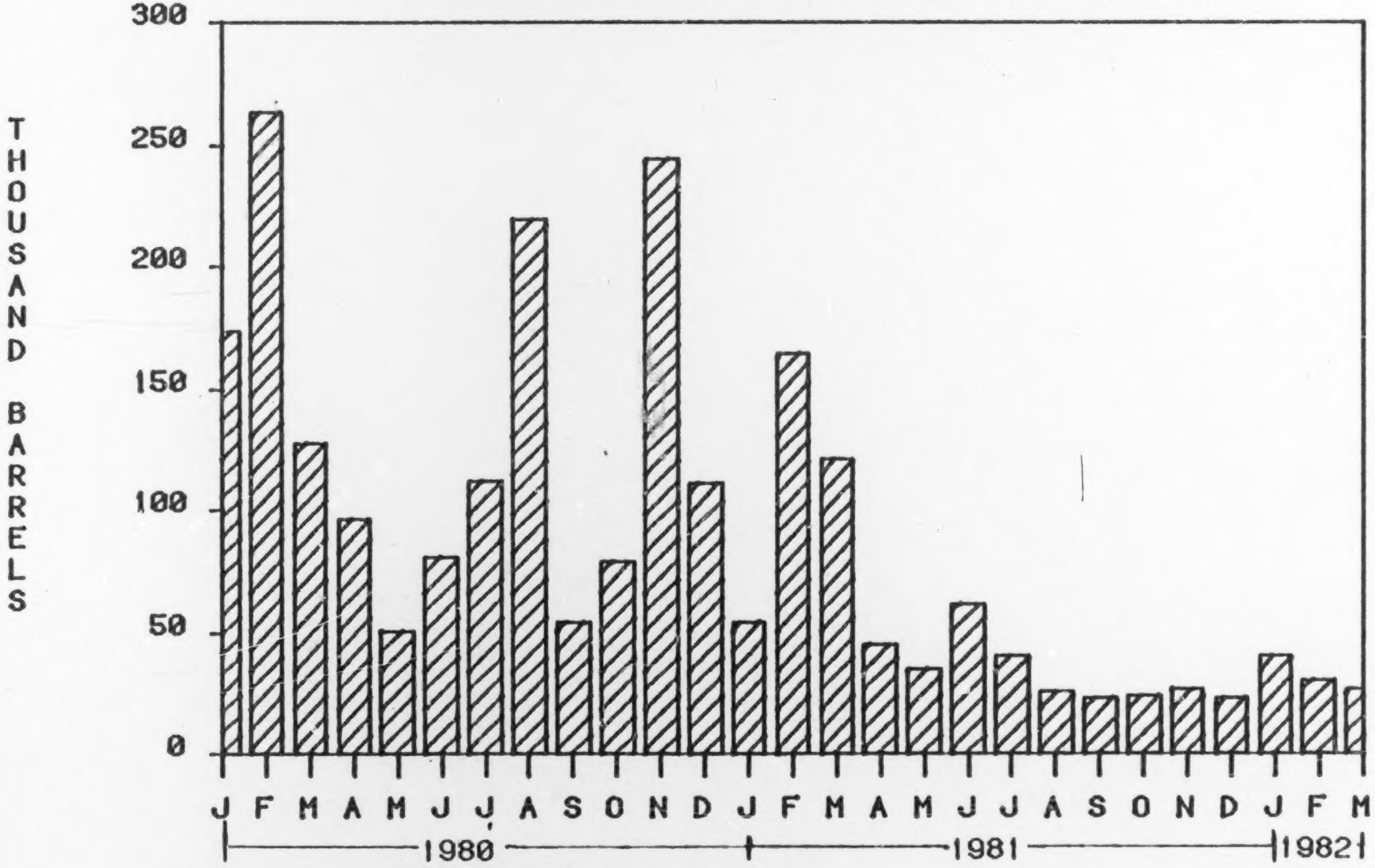
SOURCE: OHIO DEPARTMENT OF ENERGY.

Table 3. Major Oil Suppliers to Electric Utilities
(Ohio Portion)
(Thousand Barrels)

1980	Allied	Marathon	McCarthy	Standard	Union	Other	Total
January	105.0	0.2	---	49.9	4.2	14.9	174.2
February	214.0	0.2	---	44.4	4.2	----	262.8
March	73.9	0.4	---	49.9	3.3	0.1	127.6
April	77.4	0.2	---	14.0	4.7	0.7	97.0
May	40.0	0.2	---	5.1	4.5	1.1	50.9
June	40.5	---	---	35.1	4.7	1.0	81.3
July	71.8	---	---	34.4	4.4	1.2	111.8
August	111.2	42.9	---	45.4	3.5	15.5	218.5
September	39.5	3.8	---	6.4	3.8	0.4	53.9
October	60.0	2.2	---	9.4	4.9	1.7	79.1
November	173.6	0.4	---	21.6	2.3	46.4	244.3
December	94.6	0.6	---	3.4	2.3	10.1	111.0
Total	1,102.4	51.1	---	319.0	46.8	92.2	1,612.4
% of Total	68.4	3.2		19.8	2.9	5.7	
1981							
January	32.6	1.0	---	0.7	3.6	16.0	53.9
February	141.8	---	---	4.0	2.6	15.6	164.0
March	93.8	0.2	---	4.5	4.9	17.9	121.3
April	36.4	0.2	---	4.4	1.8	2.3	45.1
May	28.5	0.2	---	3.4	2.5	0.7	35.3
June	53.4	---	---	4.7	2.6	1.1	61.8
July	31.8	0.2	---	5.3	2.4	0.8	40.5
August	22.0	---	---	3.9	---	0.2	26.1
September	16.5	---	---	3.4	1.7	1.0	22.6
October	15.8	---	---	4.7	2.2	1.7	24.4
November	20.0	0.1	---	5.0	1.7	0.1	26.9
December	16.0	0.5	---	4.3	2.2	---	23.0
Total	508.6	2.4	0.0	48.3	28.2	57.4	644.9
% of Total	78.9	0.4	0.0	7.5	4.4	8.9	
1982							
January	35.9	0.5	---	2.8	1.8	---	41.0
February	25.5	0.2	---	2.3	2.9	---	30.9
March	21.8	0.2	---	3.4	1.5	---	26.9

Source: Ohio Electric Utilities' FPC Form 423 and the Ohio Department of Energy.

FIGURE 3. MONTHLY OIL DELIVERIES TO POWER PLANTS IN OHIO
THOUSAND BARRELS, JANUARY, 1980 - MARCH, 1982



SOURCE: OHIO DEPARTMENT OF ENERGY.

Table 4 and Figure 4 show the combined monthly totals of the reporting utilities' net generation from Ohio plants. Historical power plant fuel consumption and fuel stocks are displayed in Table 5. The build-up and subsequent decline in coal stocks from mid-1980 through May 1981 was occasioned by a coal strike settled in June 1981.

Historical Patterns of Ohio Electric Consumption

Since the 1973 OPEC oil embargo and with the escalation of energy prices, the pattern of electricity consumption in Ohio has changed dramatically. Increasing prices have stimulated conservation activities and fostered economic conditions that have resulted in reduced growth rates in the demand for electricity. For the twelve month period ending in May 1982, total electricity consumption in the state was 3.8 percent lower than during the same period twelve months previous (see Table 6 and Figure 5). Residential sector demand was down 0.3 percent, commercial sector demand increased 2.6 percent and industrial sector demand declined 6.6 percent.

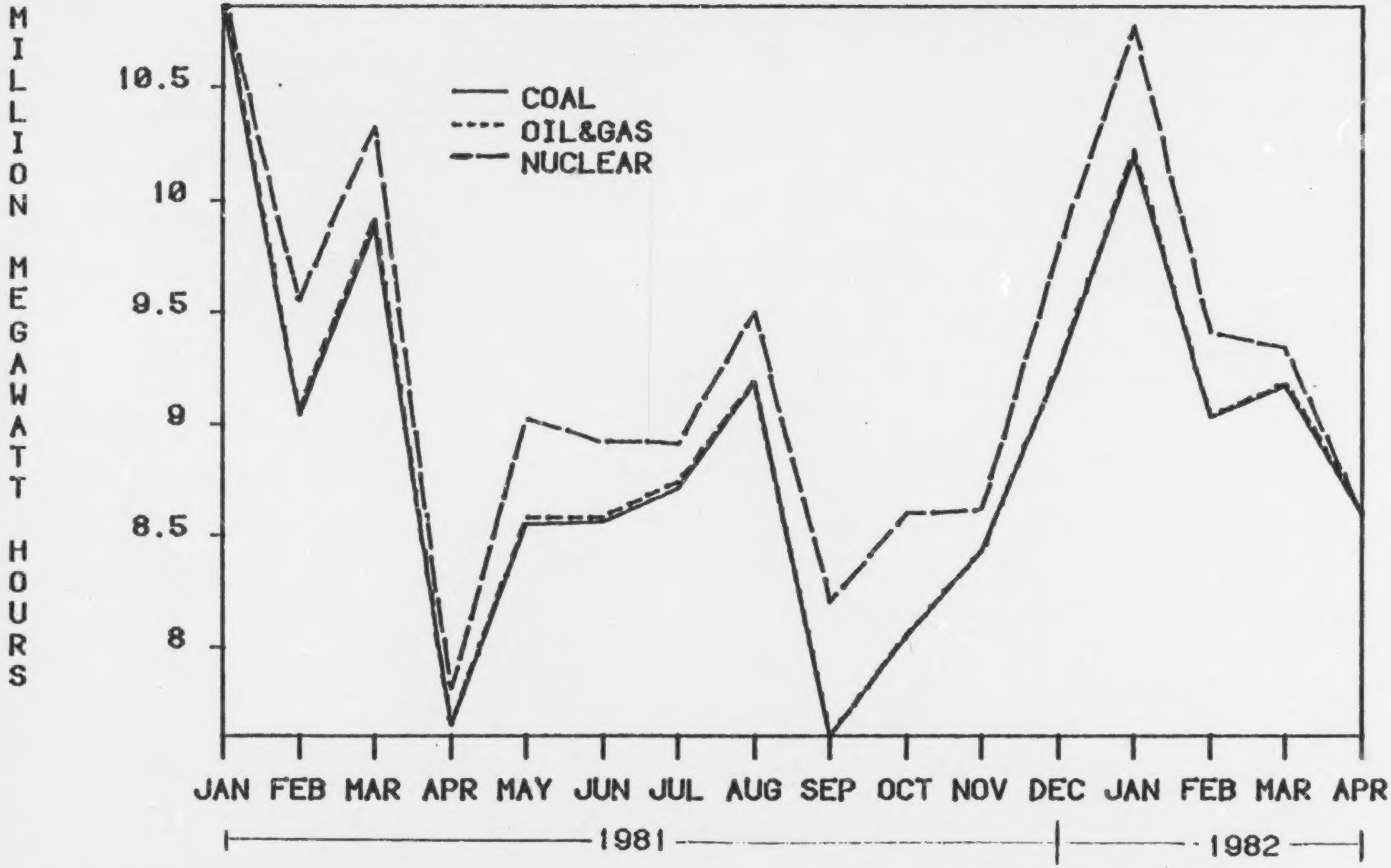
Electric consumption by the residential and commercial sectors exhibits strong seasonal patterns while the industrial sector fluctuates widely with general economic conditions. In July 1980, industrial electric consumption dipped to the lowest point in recent years, reflecting a severe downturn in the manufacturing industry and more specifically the automobile related industries. Since September 1980, monthly industrial electricity consumption has remained rather stable, fluctuating around the 3900 gigawatt-hour level.

Table 4. Major Ohio Utilities - Net Generation by Type of Fuel (Ohio Portion) (Thousand MWH)

	Coal		Oil		Gas	Nuclear		Total
1980								
January	9,863	(94%)	92	(1%)	14	501	(5%)	10,472
February	8,865	(94%)	94	(1%)	13	480	(5%)	9,453
March	9,192	(95%)	81	(1%)	14	419	(4%)	9,706
April	8,204	(99%)	11	(0%)	5	99	(1%)	8,320
May	7,565	(100%)	27	(0%)	8	0		7,600
June	8,112	(100%)	27	(0%)	10	0		8,149
July	9,289	(99%)	67	(1%)	10	0		9,366
August	9,342	(99%)	101	(1%)	41	0		9,484
September	8,781	(100%)	36	(0%)	3	0		8,820
October	8,516	(100%)	29	(0%)	5	0		8,549
November	8,248	(95%)	86	(1%)	36	316	(4%)	8,687
December	10,230	(97%)	51	(0%)	78	304	(3%)	10,593
Total	106,207	(97%)	702	(1%)	237	2,119	(2%)	109,199
1981								
January	10,864	(99%)	38	(0%)	8	58	(1%)	10,968
February	9,032	(94%)	23	(0%)	7	513	(5%)	9,576
March	9,876	(95%)	31	(0%)	13	451	(4%)	10,371
April	7,646	(98%)	3	(0%)	2	160	(2%)	7,810
May	8,547	(94%)	19	(0%)	10	477	(5%)	9,054
June	8,555	(96%)	18	(0%)	11	363	(4%)	8,947
July	8,711	(97%)	17	(0%)	12	200	(2%)	8,941
August	9,186	(97%)	5	(0%)	1	313	(3%)	9,505
September	7,596	(93%)	4	(0%)	2	607	(7%)	8,209
October	8,050	(94%)	4	(0%)	1	548	(6%)	8,603
November	8,426	(98%)	4	(0%)	1	189	(2%)	8,621
December	9,258	(95%)	2	(0%)	.5	526	(5%)	9,786
Total	105,747	(96%)	168	(0%)	68.5	4,405	(4%)	110,391
1982								
January	10,194	(94%)	27	(0%)	3	576	(5%)	10,799
February	9,026	(96%)	6	(0%)	2	386	(4%)	9,420
March	9,170	(98%)	8	(0%)	3	165	(2%)	9,347
April	8,593	(100%)	14	(0%)	3	0	(0%)	8,610

Source: Ohio Electric Utilities' FPC Form 4 and the Ohio Department of Energy.

FIG. 4. MAJOR OHIO UTILITIES NET GENERATION BY TYPE OF FUEL (OHIO PORTION)



Note: The top line of the graph represents the sum of electricity generated by each fuel type. Generation by type of fuel is represented as a portion of the total.

SOURCE: OHIO DEPARTMENT OF ENERGY.

Table 5. Major Ohio Electric Utilities
Fuel Consumption and Stocks
(Ohio Portion)

	Coal (Thousand Tons)		Oil (Thousand 42-Gal. Bbls.)		Gas (MMCF)
1980	Burned	In Stock	Burned	In Stock	Burned
January	4,459.8	10,083.3	246.7	1,347.0	317
February	3,935.4	11,351.4	258.2	1,308.6	316
March	4,098.0	11,187.8	181.7	1,247.4	354
April	3,639.8	11,806.2	94.9	1,360.4	129
May	3,396.6	12,897.9	104.1	1,289.3	132
June	3,665.3	13,631.9	108.5	1,282.5	261
July	4,249.1	12,928.8	206.7	1,253.3	301
August	4,336.7	13,114.2	297.6	1,399.9	799
September	3,928.1	13,309.7	123.9	1,097.7	994
October	3,836.1	13,724.7	116.2	1,110.0	123
November	3,738.9	13,811.6	249.9	1,076.8	717
December	4,633.3	13,351.4	181.8	1,048.7	204
Total	47,917.2	--------	2,170.2	-------	4,647
Avg/Month	3,993.1	12,599.9	180.9	1,235.1	387
1981					
January	4,906.0	12,454.4	143.3	1,055.4	166
February	4,104.6	12,373.3	111.8	1,099.1	164
March	4,456.5	12,464.5	112.2	1,174.3	121
April	3,458.7	10,302.7	70.4	1,154.3	63
May	3,937.0	7,537.9	107.6	1,116.7	119
June	3,971.2	6,742.2	89.0	1,106.0	190
July	3,688.8	6,350.9	99.5	889.6	271
August	4,189.7	7,377.8	60.3	880.1	52
September	3,449.9	8,310.6	51.2	865.6	69
October	3,556.2	9,446.1	61.8	851.5	61
November	3,714.3	10,248.7	71.8	815.8	40
December	4,156.8	10,115.6	57.2	805.8	42
Total	47,589.7	---------	1,036.1	-----	1,358
Avg/Month	3,965.8	9,477.1	86.4	984.5	113
1983					
January	4,629.5	9,351.6	147.9	735.8	119
February	4,334.6	9,241.2	71.1	721.3	59
March	4,072.6	9,866.8	67.0	723.1	68
April	3,832.1	10,153.7	74.1	762.0	73

Source: FPC Form 4 of the major electric utilities and the Ohio Department of Energy.

Table 6. Ohio Electricity Consumption
June 1981 - May 1982
(Thousand MWH)

	June	July	August	September	October	November
Residential						
1981-82	2,065.1	2,521.2	2,370.1	2,197.2	1,960.3	2,112.9
1980-81	1,942.2	2,387.1	2,711.1	2,560.5	2,012.9	2,193.3
% Change*	6.3	5.6	-12.6	-14.2	-2.6	-3.7
Commercial						
1981-82	1,758.5	1,989.6	1,906.0	1,849.5	1,621.2	1,581.2
1980-81	1,622.4	1,830.1	1,946.0	1,907.2	1,617.6	1,579.3
% Change*	8.4	8.7	-2.1	-3.0	0.2	0.1
Industrial						
1981-82	4,006.0	3,898.7	4,011.1	3,843.9	3,875.3	3,617.7
1980-81	3,616.0	3,475.9	3,621.3	3,806.1	3,910.3	3,823.2
% Change*	10.8	12.2	10.8	1.0	-0.9	-5.4
Other						
1981-82	407.1	401.3	382.5	408.3	421.1	447.5
1980-81	443.8	477.8	487.0	483.7	465.0	470.5
% Change*	-8.3	-16.0	-21.5	-15.6	-9.4	-4.9
Total						
1981-82	8,236.6	8,810.8	8,669.6	8,298.9	7,877.8	7,759.3
1980-81	7,624.4	8,170.9	8,765.4	8,757.5	8,006.7	8,066.3
% Change*	8.0	7.8	-1.0	-5.2	-1.6	-3.8
Customers (000)						
Residential	3,447.2	3,445.1	3,446.5	3,448.8	3,451.8	3,454.5
Commercial	353.1	352.9	353.3	353.5	353.9	353.7
Industrial	23.4	23.3	23.4	23.5	23.5	23.6
Total	3,823.6	3,821.3	3,823.3	3,825.7	3,829.2	3,832.3

*Percentage change is from the same period of the previous year (1980-81)

Notes: (1) Excludes sales to other utilities.

(2) Figures may not add to exact totals because of independent rounding.

(3) Figures reported include CG&E, CEI, C&SOE, DP&L, Monongahela Power, Ohio Edison, Ohio Power and Toledo Edison.

Source: Ohio Electric Utility Institute's Monthly Summaries.

Table 6. Ohio Electric Consumption (Continued)
June 1981 - May 1982
(Thousand MWH)

	December	January	February	March	April	May	Total
Residential							
1981-82	2,707.2	3,375.9	3,106.1	2,712.5	2,392.7	1,953.2	29,474.4
1980-81	2,699.3	3,333.8	2,962.9	2,603.3	2,179.5	1,985.8	29,571.7
% Change*	0.3	1.3	4.8	4.2	9.8	-1.6	-0.3
Commercial							
1981-82	1,733.3	1,955.4	1,872.6	1,781.2	1,666.8	1,632.7	21,438.0
1980-81	1,721.2	1,902.9	1,793.0	1,700.4	1,594.1	1,565.2	20,799.4
% Change*	0.7	2.8	4.4	4.8	4.6	4.3	2.6
Industrial							
1981-82	3,236.0	3,197.7	3,285.7	3,428.8	3,228.9	3,217.5	42,847.3
1980-81	3,918.8	3,861.1	3,952.8	4,048.0	3,927.2	3,930.4	45,891.1
% Change*	-17.4	-17.2	-16.9	-15.3	-17.8	-18.1	-6.6
Other							
1981-82	490.1	507.0	499.6	491.6	438.8	408.8	5,304.3
1980-81	506.1	507.8	502.2	506.5	420.6	390.7	5,662.6
% Change*	-3.0	-0.2	-0.5	-2.9	-4.3	-4.6	-6.3
Total							
1981-82	8,167.2	9,036.0	8,760.0	8,414.2	7,727.3	7,212.3	98,970.0
1980-81	8,845.4	9,605.6	9,210.9	8,858.2	8,121.4	7,872.1	102,904.8
% Change*	-7.7	-5.9	-4.9	-5.0	-4.9	-8.4	-3.8
Customers (000)							
Residential	3,461.2	3,465.3	3,467.0	3,465.5	3,461.2	3,459.2	
Commercial	354.1	354.4	354.1	354.4	354.3	355.0	
Industrial	23.7	23.7	23.8	24.0	24.3	24.4	
Total	3,939.0	3,843.4	3,844.9	3,843.9	3,839.8	3,838.5	

*Percentage change is from the same period of the previous year (1980-81).

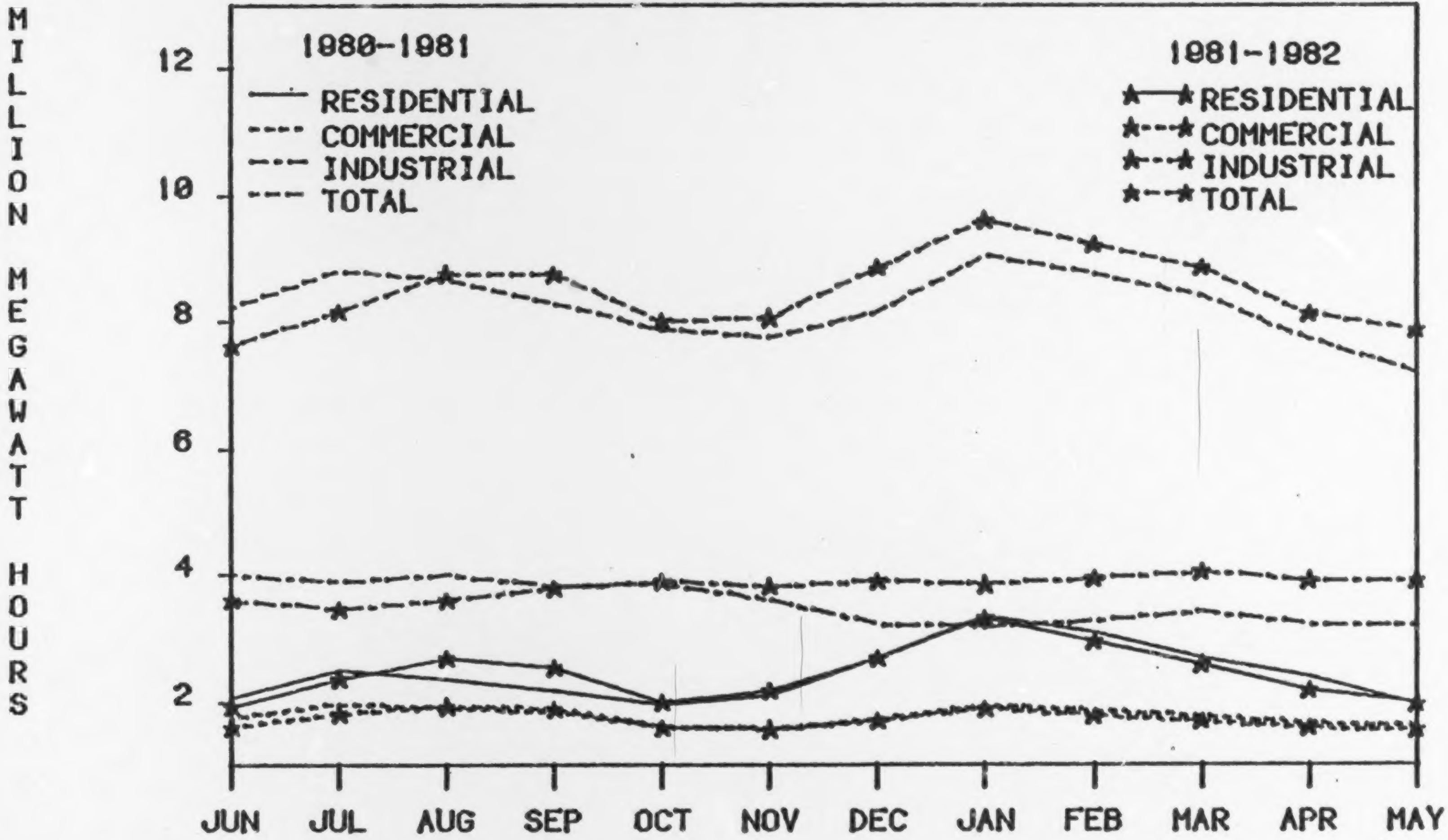
Notes: (1) Excludes sales to other utilities.

(2) Figures may not add to exact totals because of independent rounding.

(3) Figures reported include CG&E, CEI, C&SOE, DP&L, Monongahela Power, Ohio Edison, Ohio Power and Toledo Edison.

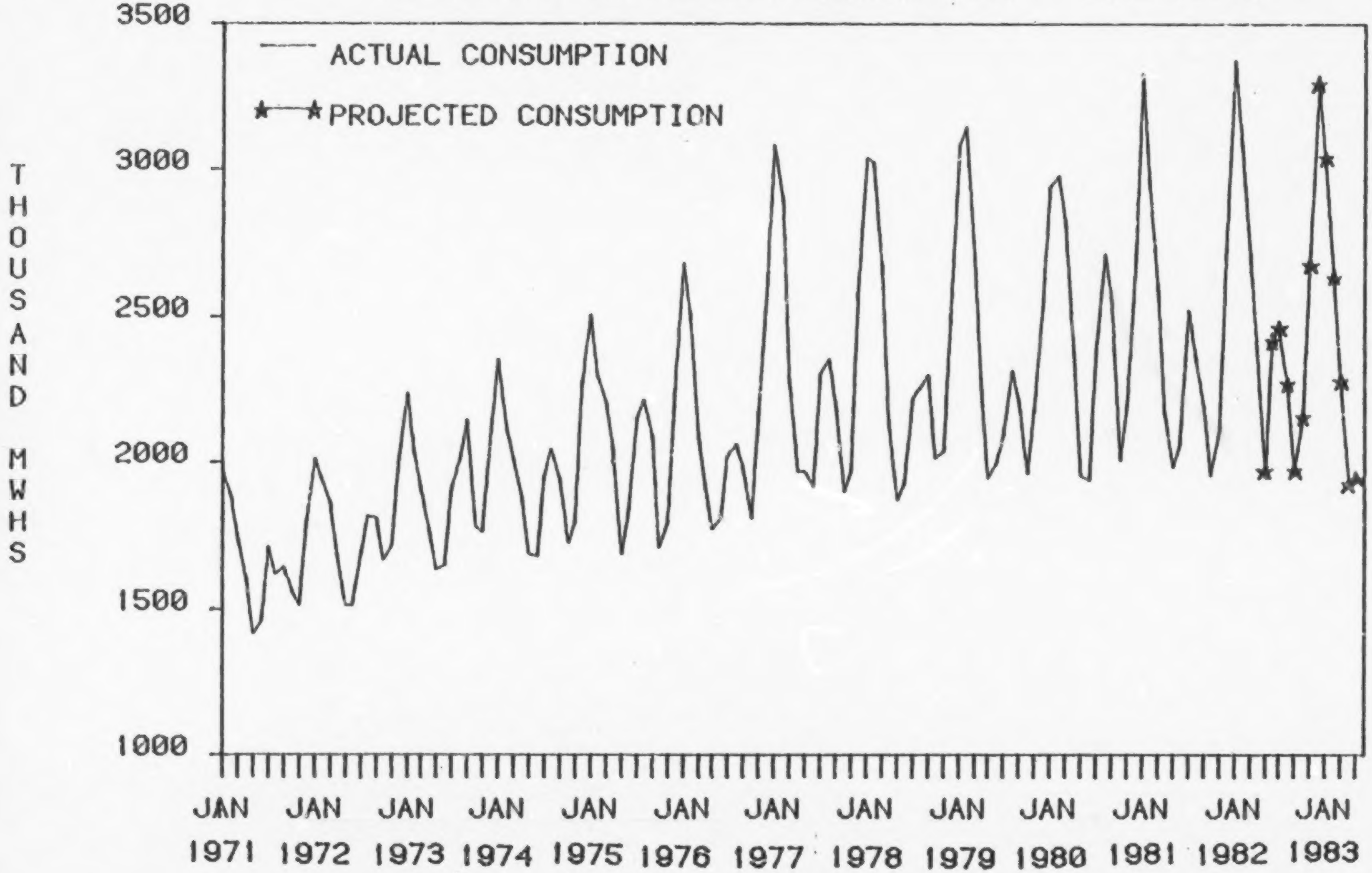
Source: Ohio Electric Utility Institute's Monthly Summaries.

FIG. 5. COMPARISON OF OHIO ELECTRICITY CONSUMPTION BY SECTOR
JUNE 1981 - MAY 1982



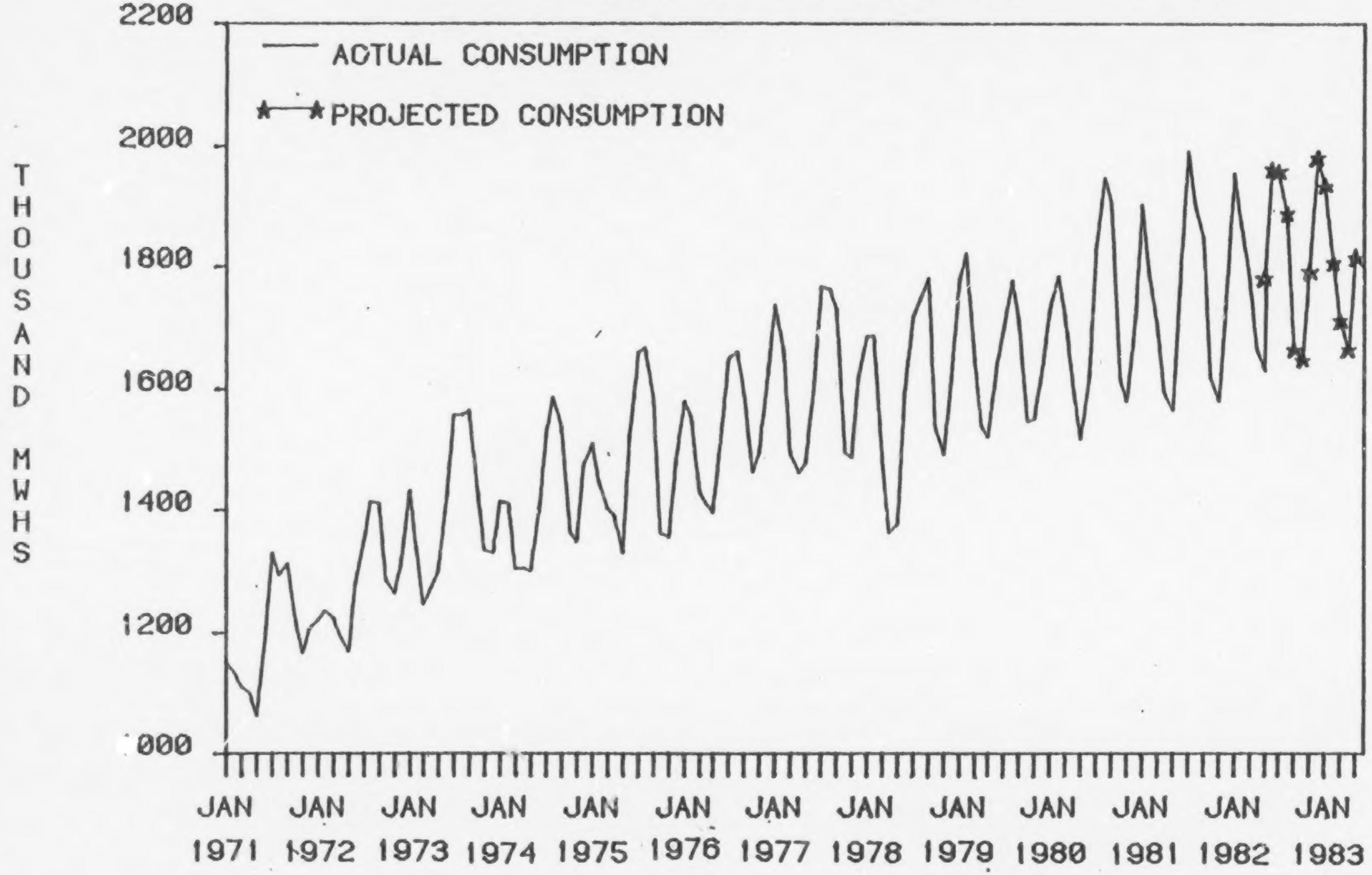
SOURCE: OHIO DEPARTMENT OF ENERGY.

FIG. 6. MONTHLY OHIO RESIDENTIAL ELECTRICITY CONSUMPTION
ACTUAL AND PROJECTED (JANUARY 1971 - JUNE 1983)



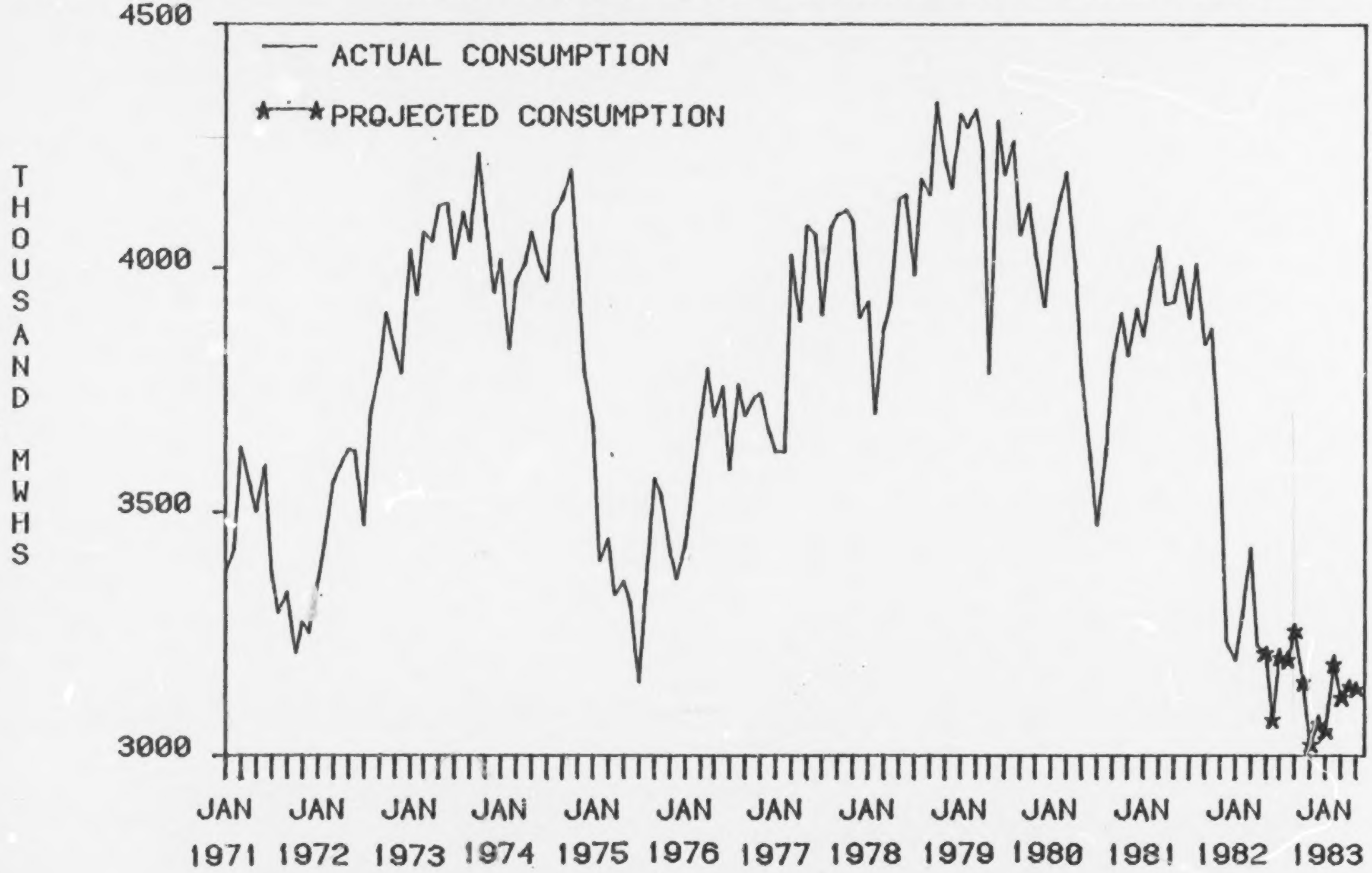
SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DEPARTMENT OF ENERGY (EXCLUDING OVEC).

FIG. 7. MONTHLY OHIO COMMERCIAL ELECTRICITY CONSUMPTION ACTUAL AND PROJECTED (JANUARY 1971 - JUNE 1983)



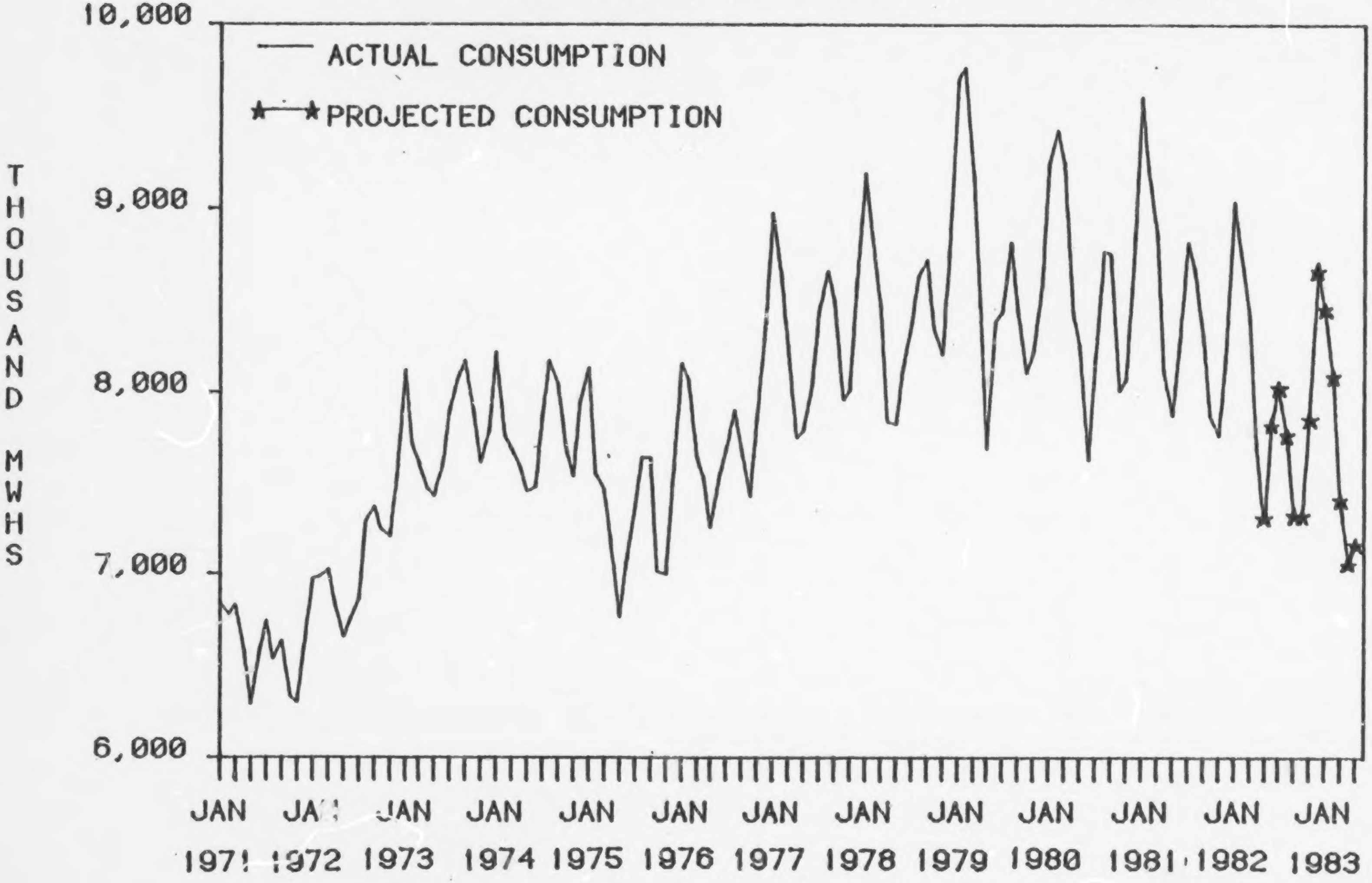
SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DEPARTMENT OF ENERGY (EXCLUDING OVEC).

FIG. 8. MONTHLY OHIO INDUSTRIAL ELECTRICITY CONSUMPTION
ACTUAL AND PROJECTED (JANUARY 1971 - JUNE 1983)



SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DEPARTMENT OF ENERGY
(EXCLUDING OVEC).

FIG. 9. TOTAL MONTHLY ELECTRICITY CONSUMPTION
ACTUAL AND PROJECTED (JANUARY 1971 - JUNE 1983)



SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DEPARTMENT OF ENERGY (EXCLUDING OVEC).

Twelve-Month Electric Energy Demand Forecast

The electric demand forecast is prepared in two ways; 1) a utility by utility forecast is given, each forecast containing total projected demand for the utility's service area, which may or may not be located entirely within Ohio; and 2) an aggregate demand for electricity within the state of Ohio is forecast by sector (residential, commercial and industrial).

Electric Demand Forecast by Utility Service Area

For each utility service area, two electric demand forecasts are provided. One of the forecasts is a reporting utility forecast and the other is provided by the Ohio Department of Energy (Appendix A, Tables A-1 through A-9).

The Ohio Department of Energy forecasts are based on monthly data from the utility reports between January 1970 and May 1982. No independent forecast is given for OVEC because this utility has only one customer whose demand is preplanned.

Because of the overlapping months for the forecasts prepared on July 1 and November 1, the utilities may elect to use their last forecasts for those overlapping months in the new forecasting period. Only the Monongahela Power Company chose to retain its earlier forecasts for July 1982 through October 1982. Ohio Edison monthly forecasts remained essentially the same, and the Ohio Valley Electric Corporation forecasts were adjusted slightly downward. All other utilities' forecasts for July 1982 through October 1982 were adjusted significantly downward.

Utility forecasts of monthly demand for July 1982 through June 1983 are for the most part higher than those prepared by the Ohio Department of Energy. The only exceptions to that pattern are forecasts of demand by the Cincinnati Gas and Electric Company, the Dayton Power and Light Company, and the Toledo Edison Company (see Tables A-1 through A-8).

Electric Demand Forecast by Sector

Except for OVEC, Ohio's demand for electricity from all eight major reporting utilities may be estimated based on monthly consumption data from January 1971 through May 1982 (Table 6 and Figures 5 through 9). For each sector, this period provides a time series of 137 observations. Based on these observations, a forecasting model is constructed to generate a monthly forecast for the future months through June 1983. These sectoral forecasts are included in Appendix A, Tables A-9 through A-12.

The total Ohio demand forecast indicates that, with the exception of December and January, demand will be lower in every month than it was in the previous year (Table A-12). The residential sector demand forecast projects lower demand than the previous year for each month with the exceptions of August, September, October, and November 1983 (Table A-9). Commercial sector demand is forecast to increase in each month of the forecasting period over the same month of the previous year, with the exception of July (Table A-10). Industrial sector demand is forecast to be much lower than the previous year in the summer and autumn of 1982, and to approach levels of the previous year in the first half of 1983 (Table A-11).

Assessment of Fuel Adequacy by Utility/Utility Group

Average daily requirements of coal were determined by dividing projected monthly coal consumption by the number of days in the month. End-of-month stocks were derived by considering consecutively end of June 1982 stocks, projected monthly coal delivery schedules as submitted by the utilities, and projected monthly coal consumption levels. Number of days' supply of coal was estimated on the basis of average daily requirements in subsequent months and the level of end-of-month stocks for the month in question.

Coal consumption projections were made through the use of a formula which adjusts coal consumption levels for changes in the consumption of oil, natural gas, and nuclear fuel in a manner that is consistent with the projected demand or net energy for load. In making these projections it is assumed that the following conditions will be satisfied:

1. Monthly demand (net energy for load) for July 1982 through June 1983 will be realized in the manner projected by the utility companies.
2. Energy required to supply projected net energy for load in a given month of July 1982 through June 1983 will be proportional to the energy consumed in supplying the actual net energy for load in the respective months of July 1982 through June 1983.
3. Monthly delivery schedules for all fuels in 1982 and 1983 will be met in the manner projected by the utility companies.

Table 7 presents forecast generation by fuel, projected daily consumption of fuel, projected fuel deliveries, projected end-of-month fuel stocks, and estimated remaining days of coal supply by utility. Forecast supplies of fuel for electricity generation are adequate in the case of every utility.

The assessment of oil adequacy is derived by using utilities' projected monthly consumption and deliveries. The projected deliveries are low when compared to the consumption levels experienced in the 1970's. Oil deliveries are believed sufficient, however, since the utilities have demonstrated their ability to reduce fuel oil consumption dramatically since the late 1970's. For the twelve month period from May 1981 through April 1982, utility consumption of oil was 47.5 percent lower than in the preceding twelve month period.

Negative values for end of month stocks and number of days' supply of oil are spurious in light of the continuing decline in electricity generated by oil that is anticipated this year. The Ohio Department of Energy foresees no shortfall of oil for generation, and is adjusting the computer model to reflect decreasing utilization of oil for generation.

Table 7. Electric Utilities Demand Forecast, Fuel Assessment, and Inventory Model (July 1982 - June 1983)

ALLEGHENY POWER SYSTEM

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
DEMAND FORECAST (GWH)	2673.0	2790.5	2620.0	2799.1	2831.1	3132.3	3365.1	2935.2	2958.6	2737.2	2729.4	2685.3	34256.7
EST DEMAND GEN BY COAL	2967.0	3097.5	2908.2	3107.0	3142.5	3476.9	3735.2	3258.1	3284.0	3229.8	3220.7	3168.6	38595.5
EST DEMAND GEN BY OIL	26.7	25.1	18.3	19.6	8.5	6.3	23.6	8.8	5.9	5.5	13.6	8.1	170.0
PROJ DAILY CONSUMPTION													
COAL (KTONS)	39.34	41.07	39.84	41.19	43.05	46.10	49.52	47.82	43.54	44.25	42.70	43.41	
OIL (KBBL)	3.55	3.34	2.52	2.60	1.17	0.83	3.13	1.30	0.79	0.75	1.81	1.11	
COAL DELIVERIES (KTONS)	1198.9	1252.6	1171.4	1231.1	1198.2	1321.2	1390.7	1227.5	1328.3	1249.2	1288.1	1224.9	15082.0
OIL DELIVERIES (KBBL)	15.70	30.10	20.31	25.76	14.91	9.28	23.10	19.43	16.57	25.02	25.70	30.10	255.98
END OF MONTH STOCK													
COAL (KTONS)	3863.9	3843.5	3819.6	3773.7	3680.3	3572.5	3428.0	3316.4	3294.9	3216.7	3181.1	3103.7	
OIL (KBBL)	261.5	188.2	133.0	78.1	58.0	41.5	-32.4	-49.2	-57.0	-54.5	-85.0	-88.1	
NUMBER OF DAYS SUPPLY													
COAL	95.	93.	88.	82.	77.	75.	76.	76.	76.	75.	73.	71.	
OIL	94.	88.	82.	67.	41.	13.	-25.	-63.	-76.	-30.	-77.	-80.	

AMERICAN ELECTRIC POWER SYSTEM

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
DEMAND FORECAST (GWH)	6913.0	7136.0	6562.0	6811.0	7115.0	7911.0	8767.0	8012.0	7666.0	6887.0	6742.0	6767.0	87288.9
EST DEMAND GEN BY COAL	7258.6	7992.3	7415.1	7355.9	8039.9	8939.4	******	9213.8	8739.2	7231.3	5757.7	5779.0	94681.0
EST DEMAND GEN BY OIL	6.9	7.1	6.6	6.8	7.1	7.9	8.8	8.0	7.7	6.9	6.7	6.8	87.3
PROJ DAILY CONSUMPTION													
COAL (KTONS)	109.37	120.43	115.45	110.84	125.18	134.70	165.12	153.71	131.68	112.59	86.75	89.98	
OIL (KBBL)	3.88	4.61	3.81	3.82	4.13	4.44	4.92	4.98	4.30	4.00	3.79	3.93	
COAL DELIVERIES (KTONS)	2374.0	3168.0	3085.0	3146.0	2853.0	3082.0	3336.0	3295.0	3677.0	3314.0	3431.0	2937.0	37698.0
OIL DELIVERIES (KBBL)	47.00	56.00	48.00	50.00	52.00	50.00	53.00	50.00	46.00	50.00	51.00	50.00	603.00
END OF MONTH STOCK													
COAL (KTONS)	******	******	******	9943.8	9041.3	7947.7	6164.9	5156.1	4751.0	4687.3	5428.9	5666.5	
OIL (KBBL)	367.7	299.5	233.3	164.7	92.9	5.2	-94.3	-183.8	-271.2	-341.1	-407.4	-475.2	
NUMBER OF DAYS SUPPLY													
COAL	96.	91.	84.	73.	60.	49.	42.	41.	46.	53.	60.	63.	
OIL	95.	77.	59.	39.	21.	1.	-19.	-43.	-68.	-90.	-104.	-121.	

Table 7. Electric Utilities Demand Forecast, Fuel Assessment, and Inventory Model (July 1982 - June 1983) (Cont'd)

CINCINNATI GAS & ELECTRIC

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
DEMAND FORECAST (GWH)	1533.6	1562.5	1307.7	1233.4	1299.9	1460.4	1498.8	1352.7	1407.3	1242.2	1323.2	1462.8	16664.6
EST DEMAND GEN BY COAL	1242.2	1265.6	1059.2	999.0	1105.0	1241.3	1274.0	1149.8	965.1	869.5	926.2	1024.0	13141.0
EST DEMAND GEN BY OIL	7.7	6.2	1.3	4.9	10.4	7.3	7.5	8.1	5.6	5.0	5.3	5.9	75.2
PROJ DAILY CONSUMPTION													
COAL (KTONS)	18.53	18.88	16.33	14.91	17.03	18.52	19.01	18.99	14.70	13.41	13.82	15.79	
OIL (KBBL)	1.31	1.07	0.23	0.84	1.83	1.25	1.28	1.53	0.96	0.88	0.90	1.03	
COAL DELIVERIES (KTONS)	650.0	631.0	500.0	453.0	475.0	610.0	570.0	538.0	590.0	460.0	600.0	550.0	6627.0
OIL DELIVERIES (KBBL)	35.00	72.00	36.00	12.00	0.0	0.0	12.00	0.0	0.0	12.00	24.00	24.00	227.00
END OF MONTH STOCK													
COAL (KTONS)	1245.2	1290.8	1301.0	1299.9	1255.9	1291.7	1272.5	1278.7	1413.1	1470.9	1642.6	1719.0	
OIL (KBBL)	94.4	133.4	162.5	148.4	93.3	54.7	27.1	-15.9	-45.6	-59.9	-63.9	-70.9	
NUMBER OF DAYS SUPPLY													
COAL	72.	81.	79.	72.	67.	71.	80.	91.	98.	97.	104.	109.	
OIL	107.	127.	125.	102.	72.	41.	18.	-17.	-52.	-66.	-62.	-69.	

CLEVELAND ELECTRIC ILLUMINATING COMPANY

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
DEMAND FORECAST (GWH)	1619.0	1661.0	1474.0	1577.0	1512.0	1693.0	1787.0	1585.0	1743.0	1575.0	1613.0	1632.0	19471.0
EST DEMAND GEN BY COAL	1052.3	1079.6	958.1	1025.0	982.8	1015.8	1072.2	951.0	1045.8	945.0	967.8	979.2	12074.7
EST DEMAND GEN BY OIL	6.5	5.0	5.9	42.6	28.7	44.0	35.7	50.7	31.4	4.7	4.8	3.3	263.3
PROJ DAILY CONSUMPTION													
COAL (KTONS)	14.61	14.99	13.74	14.23	14.10	14.10	14.88	14.61	14.52	13.55	13.43	14.04	
OIL (KBBL)	0.46	0.36	0.44	3.05	2.12	3.15	2.56	4.02	2.24	0.35	0.35	0.24	
COAL DELIVERIES (KTONS)	407.4	487.3	349.9	482.9	445.1	506.8	422.9	360.8	542.7	491.4	494.8	421.7	5413.7
OIL DELIVERIES (KBBL)	22.96	27.27	26.22	23.71	40.73	31.86	32.84	47.27	39.22	35.10	29.14	31.53	387.85
END OF MONTH STOCK													
COAL (KTONS)	1124.3	1147.0	1084.6	1126.5	1148.7	1218.4	1179.9	1131.5	1224.2	1308.9	1387.3	1387.6	
OIL (KBBL)	108.6	124.8	138.0	67.2	44.3	-21.5	-67.9	-133.1	-163.5	-138.9	-120.5	-96.2	
NUMBER OF DAYS SUPPLY													
COAL	78.	82.	77.	79.	79.	83.	83.	81.	90.	95.	99.	99.	
OIL	89.	69.	51.	31.	14.	-8.	-17.	-59.	-468.	-401.	-499.	-399.	

Table 7. Electric Utilities Demand Forecast, Fuel Assessment, and Inventory Model (July 1932 - June 1983) (Cont'd)

DAYTON POWER & LIGHT

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
DEMAND FORECAST (GWH)	941.6	947.8	847.3	889.6	922.6	1036.9	1107.7	994.7	976.6	854.8	852.6	887.5	11259.6
EST DEMAND GEN BY COAL	988.7	995.2	847.3	889.6	968.7	1088.7	1251.7	1014.6	957.1	683.8	665.0	665.6	11016.0
EST DEMAND GEN BY OIL	4.7	5.7	4.2	6.2	4.6	6.2	7.8	5.0	8.8	8.5	4.3	4.4	70.5
PROJ DAILY CONSUMPTION													
COAL (KTONS)	14.38	14.48	12.74	12.94	14.56	15.84	18.21	16.34	13.92	10.28	9.67	10.01	
OIL (KBBL)	0.30	0.37	0.28	0.40	0.31	0.40	0.50	0.35	0.57	0.57	0.27	0.30	
COAL DELIVERIES (KTONS)	512.0	533.0	423.0	457.0	482.0	555.0	616.0	540.0	470.0	427.0	442.0	526.0	5983.0
OIL DELIVERIES (KBBL)	12.00	12.00	14.00	47.00	32.06	40.00	33.00	31.00	6.00	275.00	2.00	3.00	507.00
END OF MONTH STOCK													
COAL (KTONS)	1174.1	1258.3	1299.1	1354.9	1400.0	1464.0	1515.5	1597.9	1636.3	1754.9	1896.9	2122.8	
OIL (KBBL)	125.6	126.2	131.8	166.3	189.1	216.7	234.2	255.3	243.8	501.7	495.2	489.3	
NUMBER OF DAYS SUPPLY													
COAL	88.	93.	90.	84.	83.	91.	122.	148.	164.	176.	190.	212.	
OIL	315.	324.	342.	470.	548.	653.	733.	810.	800.	1701.	1677.	1657.	

OHIO EDISON SYSTEM

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
DEMAND FORECAST (GWH)	2156.8	2309.4	2078.3	2160.4	2090.1	2341.2	2468.1	2196.1	2271.9	2086.9	2114.3	2111.1	26384.6
EST DEMAND GEN BY COAL	2199.9	2355.6	2119.9	2203.6	2090.1	2341.2	2468.1	1976.5	2044.7	1878.2	1902.9	2132.2	25712.9
EST DEMAND GEN BY OIL	4.3	16.2	18.7	2.2	35.5	4.7	24.7	11.0	4.5	10.4	4.2	8.4	144.9
PROJ DAILY CONSUMPTION													
COAL (KTONS)	32.88	35.20	32.74	32.93	32.28	34.99	36.89	32.70	30.56	29.01	28.44	32.93	
OIL (KBBL)	0.29	1.11	1.32	0.15	2.51	0.32	1.69	0.83	0.31	0.74	0.29	0.60	
COAL DELIVERIES (KTONS)	918.9	992.1	958.9	919.4	947.5	1038.6	1055.3	944.3	979.1	989.5	1037.2	944.8	11725.7
OIL DELIVERIES (KBBL)	19.83	17.98	17.95	33.45	23.79	43.82	71.59	59.44	55.94	42.72	51.48	28.67	466.66
END OF MONTH STOCK													
COAL (KTONS)	1998.3	1899.0	1875.8	1774.3	1753.4	1707.3	1619.2	1647.7	1679.6	1798.9	1954.5	1911.4	
OIL (KBBL)	127.9	111.6	89.9	118.8	67.3	101.1	120.4	156.6	202.9	223.5	266.0	276.8	
NUMBER OF DAYS SUPPLY													
COAL	59.	58.	57.	53.	49.	48.	51.	55.	58.	59.	59.	58.	
OIL	112.	88.	92.	81.	68.	112.	215.	286.	349.	391.	446.	464.	

Table 7. Electric Utilities Demand Forecast, Fuel Assessment, and Inventory Model (July 1982 - June 1983) (Cont'd)

OHIO VALLEY ELECTRIC CORPORATION

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
DEMAND FORECAST (GWH)	1458.8	1458.8	1300.7	1408.6	1445.2	1432.5	1441.4	1260.7	1362.5	1348.0	1352.1	1360.9	16630.2
EST DEMAND GEN BY COAL	1458.8	1590.1	1482.8	1352.2	1372.9	1375.2	1354.9	1222.9	1253.5	1321.0	1352.1	1320.0	16456.6
EST DEMAND GEN BY OIL	1.5	1.5	2.6	5.6	2.9	2.9	4.3	5.0	6.8	5.4	2.7	4.1	45.3
PROJ DAILY CONSUMPTION													
COAL (KTONS)	20.30	22.12	21.32	18.81	19.74	19.13	18.85	18.84	17.44	18.99	18.81	18.98	
OIL (KBBL)	0.09	0.09	0.17	0.36	0.19	0.18	0.28	0.36	0.44	0.36	0.17	0.27	
COAL DELIVERIES (KTONS)	619.0	622.0	547.0	573.0	585.0	579.0	599.0	530.0	571.0	570.0	573.0	579.0	6947.0
OIL DELIVERIES (KBBL)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	18.00
END OF MONTH STOCK													
COAL (KTONS)	1515.8	1452.0	1359.4	1349.2	1342.1	1328.0	1342.6	1345.2	1375.5	1375.8	1365.6	1375.3	
OIL (KBBL)	4.6	3.2	-0.5	-10.3	-14.6	-18.8	-26.9	-34.6	-46.7	-56.0	-59.9	-66.5	
NUMBER OF DAYS SUPPLY													
COAL	71.	73.	71.	70.	71.	71.	73.	73.	73.	73.	72.	72.	
OIL	41.	18.	-1.	-53.	-79.	-67.	-72.	-79.	-130.	-321.	-220.	-244.	

TOLEDO EDISON

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOTAL
DEMAND FORECAST (GWH)	608.5	619.9	588.0	597.8	630.9	655.2	732.6	701.4	709.4	632.8	614.5	638.4	7729.6
EST DEMAND GEN BY COAL	363.3	379.4	322.8	361.1	376.6	402.3	372.9	312.1	344.1	386.7	433.9	395.2	4450.3
EST DEMAND GEN BY OIL	0.6	0.6	1.8	4.8	2.5	3.9	7.3	9.8	5.7	1.9	2.5	3.2	44.6
PROJ DAILY CONSUMPTION													
COAL (KTONS)	4.70	4.91	4.32	4.67	5.04	5.21	4.83	4.47	4.45	5.17	5.62	5.29	
OIL (KBBL)	0.04	0.04	0.13	0.33	0.18	0.27	0.50	0.75	0.39	0.13	0.17	0.23	
COAL DELIVERIES (KTONS)	120.0	170.0	150.0	138.0	140.0	120.0	132.0	137.0	135.0	122.0	107.0	118.0	1589.0
OIL DELIVERIES (KBBL)	4.07	5.36	4.98	2.64	7.38	4.81	9.90	13.07	11.19	8.55	3.17	7.19	82.31
END OF MONTH STOCK													
COAL (KTONS)	378.2	396.0	416.4	409.5	398.4	356.9	339.3	351.0	347.9	314.8	247.7	207.1	
OIL (KBBL)	34.3	38.4	39.6	32.0	34.0	30.5	24.8	16.9	16.0	20.5	18.4	18.8	
NUMBER OF DAYS SUPPLY													
COAL	82.	85.	84.	81.	82.	77.	74.	71.	65.	58.	47.	39.	
OIL	164.	143.	123.	96.	75.	51.	38.	65.	91.	98.	81.	83.	

NATURAL GAS

Service shares of the gas distribution companies operating in Ohio are presented in Table 8 for the annual period June 1981 to May 1982. During this period of time, the four large distribution companies--Cincinnati Gas and Electric, Columbia Gas of Ohio, Dayton Power and Light, and East Ohio Gas--jointly distributed 93.96 percent of the reported natural gas requirements of the state. The four intermediate companies--National Gas and Oil, Ohio Gas, River Gas, and West Ohio Gas--distributed an additional 4.49 percent. The remaining 1.55 percent of the reported natural gas requirements were distributed by 22 small utilities and two municipal utilities. The figures presented in Table 8 do not include self-help natural gas.

Supply

The major sources of supplies of natural gas to the state of Ohio are presented in Table 9, and the quantities supplied are shown graphically in Figure 10. Between June 1981 and May 1982, the eight major gas distribution companies of Ohio, which together account for 98.43 percent of the reported natural gas distribution in the state, procured 900,332 MMCF of natural gas to meet Ohio's requirements. This represents a 2.1 percent decrease in the supplies of natural gas to Ohio compared to the same period last year. This decline reflects the reaction of Ohio's gas distribution companies to the declining natural gas requirements of residential, commercial, and especially industrial end-users in Ohio. The various causes are effective conservation measures, the recession of 1980-1982, and the latest round of price increases for fuel oil and

Table 8. Total Natural Gas Requirements of All Commercial Utilities in Ohio Between June 1981 and May 1982 (MMCF)

	(1) Sales to All End Users	(2) Storage (In)	Total Requirement (1+2)	Percent of Total Ohio Requirement
Cincinnati Gas and Electric Co.	89,852	0	89,852	9.83
Columbia Gas of Ohio	324,397	0	324,397	35.47
Dayton Power and Light Co.	58,850	0	58,850	6.44
East Ohio Gas Co.	326,112	60,009	386,121	42.22
National Gas and Oil Co.	13,914	1,463	15,377	1.68
Ohio Gas Co.	7,255	461	7,716	0.84
River Gas Co.	4,453	0	4,453	0.49
West Ohio Gas Co.	13,565	0	13,565	1.48
Total Eight Major Utilities	838,398	61,933	900,331	98.45
Total Small Utilities	7,262	0	7,262	0.80
Municipal Utilities	6,897	0	6,897	0.75
Total All Utilities	852,557	61,933	914,490	100.00

Source: ODOE Form SG-2 and SG-4.

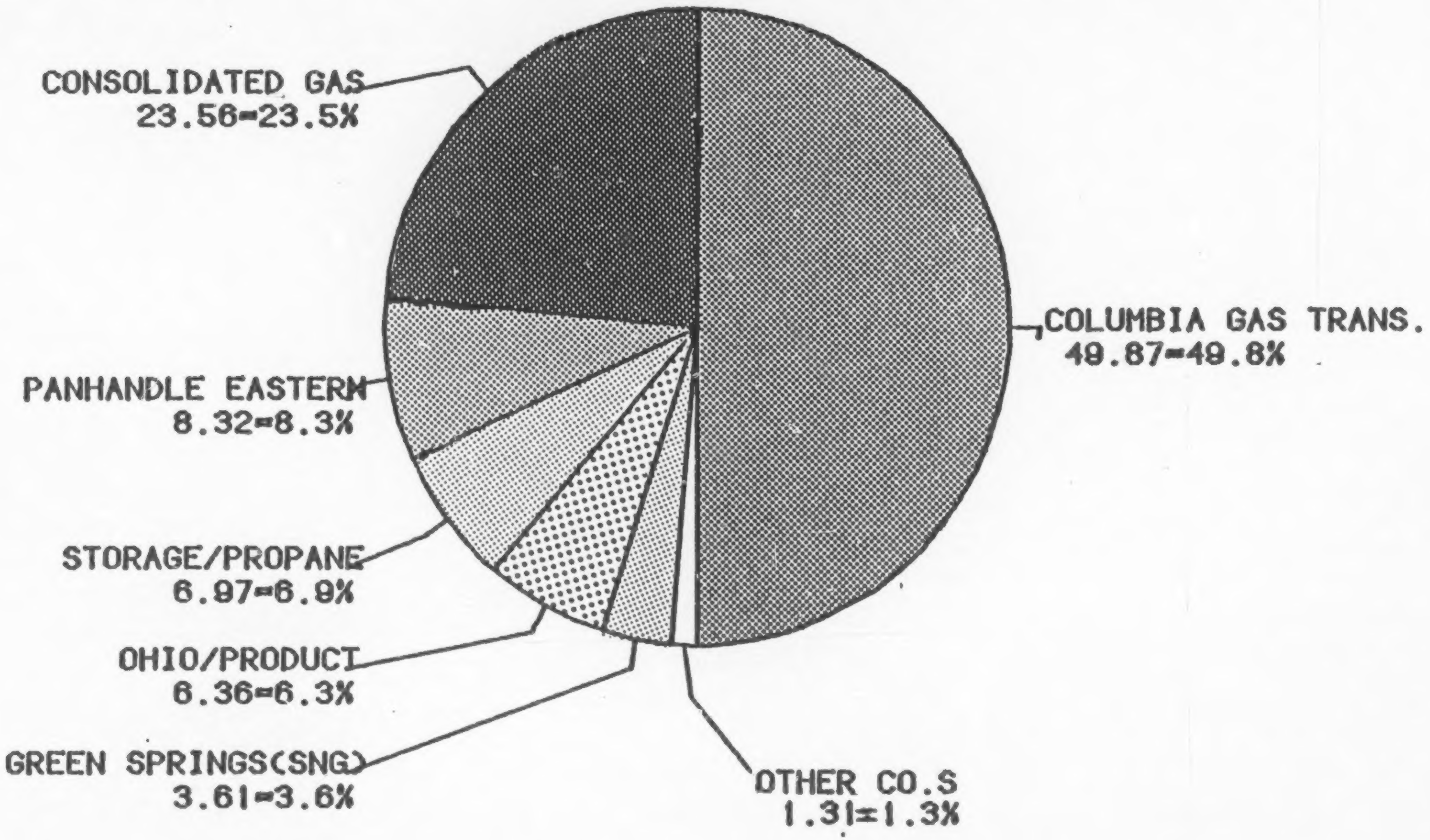
Table 9. Sources of Natural Gas Supplies to the Eight Major Gas Utilities Between June 1981 and May 1982 (MMCF)

Source	Supply	Percent of Total	Rank
Columbia Gas Transmission Corp.	448,970	49.87	1
Consolidated Gas Supply Corp.	212,150	23.56	2
Lawrenceburg Gas Transmission Corp.	2,450	0.27	8
Michigan/Wisconsin Pipe Line Co.	652	0.07	10
Panhandle Eastern Pipe Line Co.	74,872	8.32	3
Tennessee Gas Pipeline Co.	1,705	0.19	9
Texas Eastern Transmission Corp.	7,259	0.81	7
Texas Gas Transmission Corp.	276	0.03	11
Green Springs (SNG)	32.478	3.61	6
Storage/Propane*	62,812	6.97	4
Other	-571	-0.06	-
Total SNG and Out-of-State	843,053	93.64	
Ohio Product	57,279	6.36	5
Total	900,332	100.00	

*Gas in storage represents a source during the period under consideration.

SOURCE: Ohio Department of Energy Form SG-2.

FIG. 10. SOURCE OF NATURAL GAS SUPPLY TO THE EIGHT MAJOR OHIO GAS UTILITIES (JUNE 1981 - MAY 1982)



SOURCE: OHIO DEPARTMENT OF ENERGY.

natural gas.

Of the 900,332 MMCF of total procurement, 93.64 percent is interstate gas purchases and SNG. The remaining 6.36 percent is purchases of Ohio gas. The 57,279 MMCF of Ohio production of natural gas purchased by the eight major gas utilities between June 1981 and May 1982 represents a 10.3 percent decrease from their purchases of Ohio product during the preceding annual period. This amount corresponds approximately to 40.6 percent of the state's total production in calendar year 1981. The remainder of the natural gas produced in Ohio is either transported directly to end-users in the self-help program, or is distributed by some of the 22 smaller utilities and the municipal gas utilities.

Domestic interstate gas is the major source of supply for Ohio. Columbia Gas Transmission Corporation and Consolidated Gas Supply Corporation have provided 77.69 percent of the natural gas supplied to the eight major Ohio gas distribution companies. No LNG imports were included in these supplies; and no LNG imports are anticipated by Columbia as a source of supply for the 1982-1983 heating season.

Table 10 exhibits a monthly comparison of actual and projected supplies, by source, for the eight major gas utilities.

Historical Behavior of Monthly Sectoral Requirements

The regularities in the monthly time series behavior of residential, commercial, industrial, and total natural gas requirements in Ohio, from January 1970 through May 1982, are displayed in Figures 11, 12, 13, and 14. The seasonal variation in residential and commercial requirements can easily be discerned from these illustrations. Natural gas usage in all sectors peaks during the heating season, and falls off during the

Table 10. Comparison Between One Year of Actual and Forecast Supply For Eight Major Ohio Gas Utilities by Source

(MMCF)

MO/YR	COLUMBIA GAS	CONSOLIDATED GAS	LAWRENCEBURG	MICH. WISC.	PANHANDLE EAST	TENN. GAS	TEXAS EASTERN	TEXAS GAS	EMERG GAS	OHIO PRODUCT	SNG	STORAGE/ PROPANE	OTHER	TOTAL SUPPLIES
6/82	20318	14701	255	42	6184	150	600	10	0	4729	1789	165	-60	48883
6/81	19002	12196	240	24	5834	151	566	7	0	5046	1576	149	-119	44672
	6.9%	20.5%	6.3%	75.0%	6.0%	-0.7%	6.0%	42.9%	0.0%	-6.3%	13.5%	10.7%	49.6%	9.4%
7/82	17942	12355	263	36	6239	150	620	9	0	4715	1491	170	-35	43955
7/81	17275	10512	256	21	6041	155	624	6	0	5397	1404	168	-97	41762
	3.9%	17.5%	2.7%	71.4%	3.3%	-3.2%	-0.6%	50.0%	0.0%	-12.6%	6.2%	1.2%	63.9%	5.3%
8/82	19781	12263	224	20	6295	150	620	9	0	4741	1517	165	-35	45750
8/81	17700	11102	174	23	6031	155	558	6	0	4841	1427	168	-24	42161
	11.8%	10.5%	28.7%	-13.0%	4.4%	-3.2%	11.1%	50.0%	0.0%	-2.1%	6.3%	-1.8%	-45.8%	8.5%
9/82	20146	13655	255	35	6402	150	620	10	0	4765	1786	165	-70	47919
9/81	19122	13002	237	49	5836	127	626	7	0	4959	1539	173	-79	45598
	5.4%	5.0%	7.6%	-28.6%	9.7%	18.1%	-1.0%	42.9%	0.0%	-3.9%	16.0%	-4.6%	11.4%	5.1%
10/82	31020	20011	264	71	6899	150	620	15	0	4772	2451	170	-70	66373
10/81	30064	20208	246	103	6359	156	685	15	0	4942	2112	230	-112	65008
	3.2%	-1.0%	7.3%	-31.1%	8.5%	-3.8%	-9.5%	0.0%	0.0%	-3.4%	16.1%	-26.1%	37.5%	2.1%
11/82	42881	11685	218	80	6160	150	600	31	0	4761	3353	11469	-90	81298
11/81	41285	11787	216	57	6214	143	585	29	0	4858	3125	9988	-79	78208
	3.9%	-0.9%	0.9%	40.4%	-0.9%	4.9%	2.6%	6.9%	0.0%	-2.0%	7.3%	14.8%	-13.9%	4.0%
12/82	60331	19253	163	83	6603	150	620	45	0	4822	4409	14952	-63	111368
12/81	60731	19245	157	60	6688	127	650	45	0	4845	4104	14495	-246	110901
	-0.7%	0.0%	3.8%	38.3%	-1.3%	18.1%	-4.6%	0.0%	0.0%	-0.5%	7.4%	3.2%	74.4%	0.4%
1/83	67752	20928	138	92	6630	150	620	48	0	4802	4713	17929	-60	123742
1/82	77590	31212	120	136	6983	152	614	57	0	4517	4384	16792	-71	142486
	-12.7%	-32.9%	15.0%	-32.4%	-5.1%	-1.3%	1.0%	-15.8%	0.0%	6.3%	7.5%	6.8%	15.5%	-13.2%
2/83	59652	21790	117	99	6090	140	540	45	0	4738	4450	11515	20	109196
2/82	62389	25949	115	64	6174	121	561	43	0	4008	4129	10191	50	113794
	-4.4%	-16.0%	1.7%	54.7%	-1.4%	15.7%	-3.7%	4.7%	0.0%	18.2%	7.8%	13.0%	-60.0%	-4.0%
3/83	50023	18912	200	82	6539	150	625	38	0	4598	3964	9355	20	94506
3/82	49365	20105	193	55	6584	136	634	32	0	4694	3760	9194	271	95023
	1.3%	-5.9%	3.6%	49.1%	-0.7%	10.3%	-1.4%	18.8%	0.0%	-2.0%	5.4%	1.8%	-92.6%	-0.5%
4/83	34634	23515	255	67	6127	150	610	21	0	4576	3178	535	10	73678
4/82	37204	24537	236	40	6142	147	585	21	0	4602	2842	990	-43	77303
	-6.9%	-4.2%	8.1%	67.5%	-0.2%	2.0%	4.3%	0.0%	0.0%	-0.6%	11.8%	-46.0%	123.3%	-4.7%
5/83	24693	18951	263	38	6211	150	590	15	0	4552	2320	230	-10	58003
5/82	17243	12295	260	20	5986	135	571	8	0	4570	2076	274	-22	43416
	43.2%	54.1%	1.2%	90.0%	3.8%	11.1%	3.3%	87.5%	0.0%	-0.4%	11.8%	-16.1%	54.5%	33.6%
SUMMER TOTAL														
	168534	115451	1779	309	44357	1050	4280	89	0	32850	14532	1600	-270	384561
	157610	103852	1649	280	42229	1026	4215	70	0	34357	12976	2152	-496	359920
	6.9%	11.2%	7.9%	10.4%	5.0%	2.3%	1.5%	27.1%	0.0%	-4.4%	12.0%	-25.7%	45.6%	6.8%
WINTER TOTAL														
	280639	92568	836	436	32022	740	3005	207	0	23721	20889	65220	-173	520110
	291360	108298	801	372	32643	679	3044	206	0	22922	19502	60660	-75	540412
	-3.7%	-14.5%	4.4%	17.2%	-1.9%	9.0%	-1.3%	0.5%	0.0%	3.5%	7.1%	7.5%	-130.7%	-3.8%
YEAR TOTAL														
	449173	208019	2615	745	76379	1790	7285	296	0	56571	35421	66820	-443	904671
	448970	212150	2450	652	74872	1705	7259	276	0	57279	32478	62812	-571	900332
	0.0%	-1.9%	6.7%	14.3%	2.0%	5.0%	0.4%	7.2%	0.0%	-1.2%	9.1%	6.4%	22.4%	0.5%

NOTE: (1) WINTER TOTAL IS A SUM OF THE VALUES IN NOVEMBER, DECEMBER, JANUARY, FEBRUARY, AND MARCH.

(2) 999.9% REPRESENTS AN INFINITE PERCENTAGE CHANGE RESULTING FROM AN INCREASE FROM A ZERO VALUE TO SOME NON-ZERO VALUE AND THUS A DIVISION BY ZERO.

cooling season. The contrast between the natural gas consumption levels during the heating as opposed to the non-heating seasons has increased over the past two years. The effects of curtailments enforced on the industrial sector during the 1976-77 heating season is dramatically shown in Figure 13.

Since natural gas is the primary source of space heating for the residential and commercial sectors, over 60 percent of the natural gas consumed in Ohio is used during the heating season. Table 11 shows the actual aggregate monthly requirements for the eight major utilities, between June 1981 and May 1982, along with the utilities' consolidated projections for the forthcoming twelve months. Figure 15 is a graphic representation of the utilities' consolidated sectoral projections for the forthcoming twelve months.

Independent forecasts of Ohio sectoral requirements are presented along with the utilities' forecasts in Appendix B, Tables B-5 through B-8, for the annual period June 1982-May 1983.

Historical Behavior of Annual Sectoral Requirements

In Figures 16-21 we have presented the annual sectoral natural gas consumption patterns observed in Ohio between 1960 and 1981. In Figure 22 we have indicated the relative shares of residential, commercial, industrial, and the combined electric utilities and transportation sectors in the Ohio total.

With the breakdown of the Bretton Woods International Monetary System in 1971, which eventually led to a one hundred percent depreciation in the U.S. dollar, and the OPEC price hikes of 1973, which permanently altered the structure of costs and expenditures in all sectors of the economy,

Table 11. Comparison Between One Year of Actual and Forecast Demand For Eight Major Ohio Gas Utilities by Sector

(MMCF)

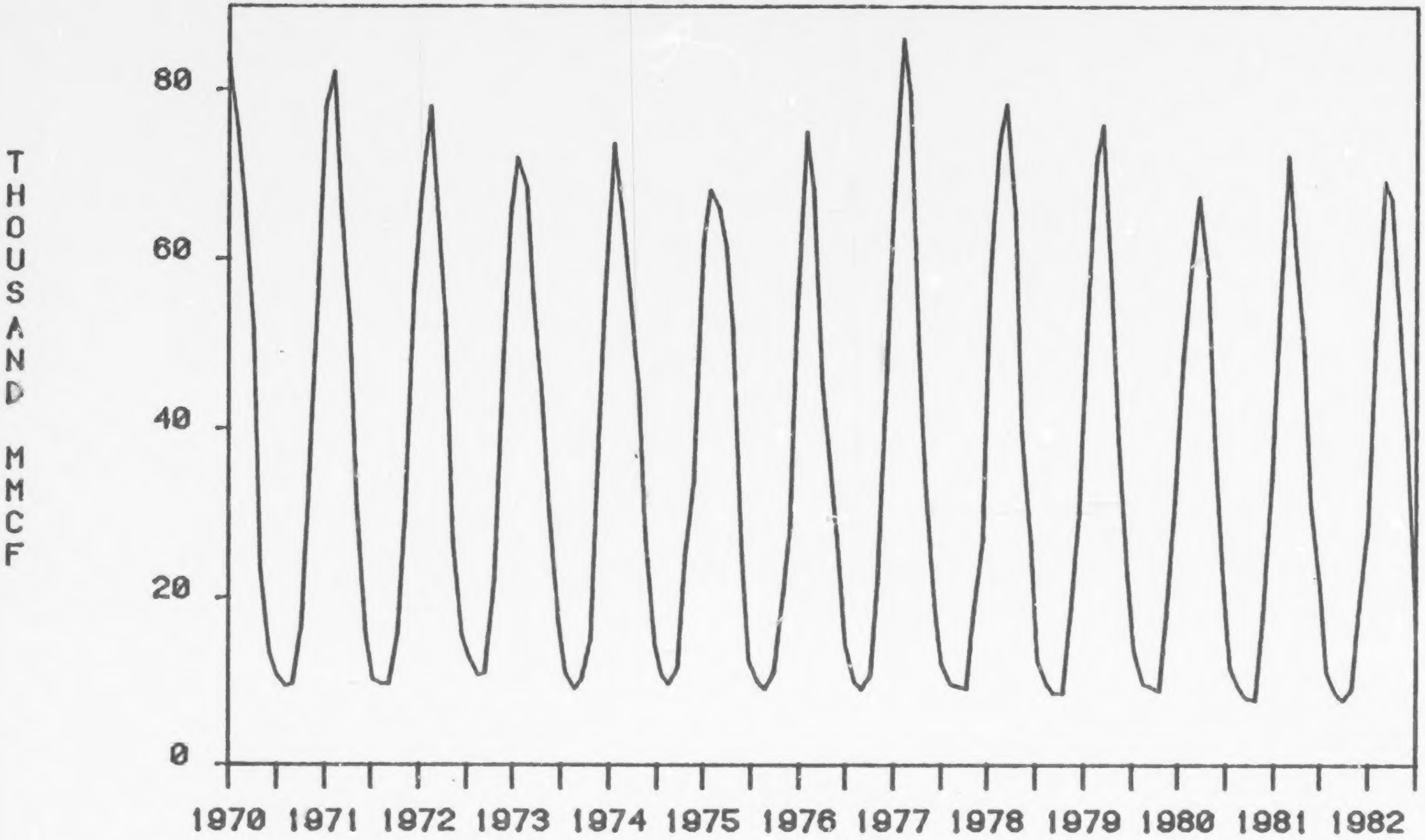
MONTH/YEAR	DEGREE DAYS	RESIDENTIAL REQUIREMENT	COMMERCIAL REQUIREMENT	INDUSTRIAL REQUIREMENT	OTHER REQUIREMENT	STORAGE (IN)	TOTAL REQUIREMENT	DEFICIENCY
6/82	30	11888	5214	23724	-2483	10113	48456	-427
6/81	29	11236	4935	22415	-3163	9249	44672	0
	3.4%	5.8%	5.7%	5.8%	21.5%	9.3%	8.5%	999.9%
7/82	5	8365	3988	21215	172	9821	43561	********
7/81	5	8598	3962	19841	235	9126	41762	0
	0.0%	-2.7%	0.7%	6.9%	-26.8%	7.6%	4.3%	999.9%
8/82	11	8130	3888	22522	1659	9108	45307	-443
8/81	11	7690	3822	20113	1452	9084	42161	0
	0.0%	5.7%	1.7%	12.0%	14.3%	0.3%	7.5%	999.9%
9/82	87	8973	4191	22550	2758	8460	46932	-987
9/81	87	9085	4279	20435	3382	8417	45598	0
	0.0%	-1.2%	-2.1%	10.3%	-18.5%	0.5%	2.9%	999.9%
10/82	334	15971	6839	24962	10678	6833	65283	-1090
10/81	334	18605	7818	22316	8846	7423	65008	0
	0.0%	-14.2%	-12.5%	11.9%	20.7%	-7.9%	0.4%	999.9%
11/82	690	30277	13110	24956	12685	0	81028	-270
11/81	686	28567	12342	23029	14009	261	78208	0
	0.6%	6.0%	6.2%	8.4%	-9.5%	-100.0%	3.6%	999.9%
12/82	1052	50665	21717	27676	10915	0	110973	-395
12/81	1028	49705	21544	25308	14344	0	110901	0
	2.3%	1.9%	0.8%	9.4%	-23.9%	0.0%	0.1%	999.9%
1/83	1141	60981	25915	28897	6288	1326	123407	-335
1/82	1124	69255	29551	29039	14441	200	142486	0
	1.5%	-11.9%	-12.3%	-0.5%	-56.5%	563.0%	-13.4%	999.9%
2/83	980	58789	25410	28023	-4481	1326	109067	-129
2/82	977	67151	29093	28676	-11133	7	113794	0
	0.3%	-12.5%	-12.7%	-2.3%	59.8%	18842.9%	-4.2%	999.9%
3/83	823	50532	21921	27004	-5326	0	94131	-375
3/82	814	51411	22342	25915	-4647	3	95023	0
	1.1%	-1.7%	-1.9%	4.2%	-14.6%	-100.0%	-0.9%	999.9%
4/83	735	34373	14985	24113	-8370	8253	72702	-976
4/82	455	39529	16575	22051	-8727	7874	77302	-1
	61.5%	-13.0%	-9.6%	9.4%	4.1%	4.8%	-6.0%	*******%
5/83	202	20001	8819	22502	-4084	10640	57878	-125
5/82	196	16622	6910	17575	-7980	10289	43416	0
	3.1%	20.3%	27.6%	28.0%	48.8%	3.4%	33.3%	999.9%
SUMMER TOTAL	1404	107701	47924	161588	330	63228	380119	-13553879
	1117	111365	48301	144746	-5955	61462	359919	-1
	25.7%	-3.3%	-0.8%	11.6%	105.5%	2.9%	5.6%	*******%
WINTER TOTAL	4686	251244	108073	136556	20081	2652	518606	-1504
	4629	266089	114872	131967	27014	471	540412	0
	1.2%	-5.6%	-5.9%	3.5%	-25.7%	463.1%	-4.0%	999.9%
YEAR TOTAL	6090	358945	155997	298144	20411	65880	898725	-13555383
	5746	377454	163173	276713	21059	61933	900331	-1
	6.0%	-4.9%	-4.4%	7.7%	-3.1%	6.4%	-0.2%	*******%

NOTE: (1) WINTER TOTAL IS A SUM OF THE VALUES IN NOVEMBER, DECEMBER, JANUARY, FEBRUARY, AND MARCH

(2) 999.9% REPRESENTS AN INFINITE PERCENTAGE CHANGE RESULTING FROM AN INCREASE FROM A ZERO VALUE TO SOME NON-ZERO VALUE AND THUS A DIVISION BY ZERO.

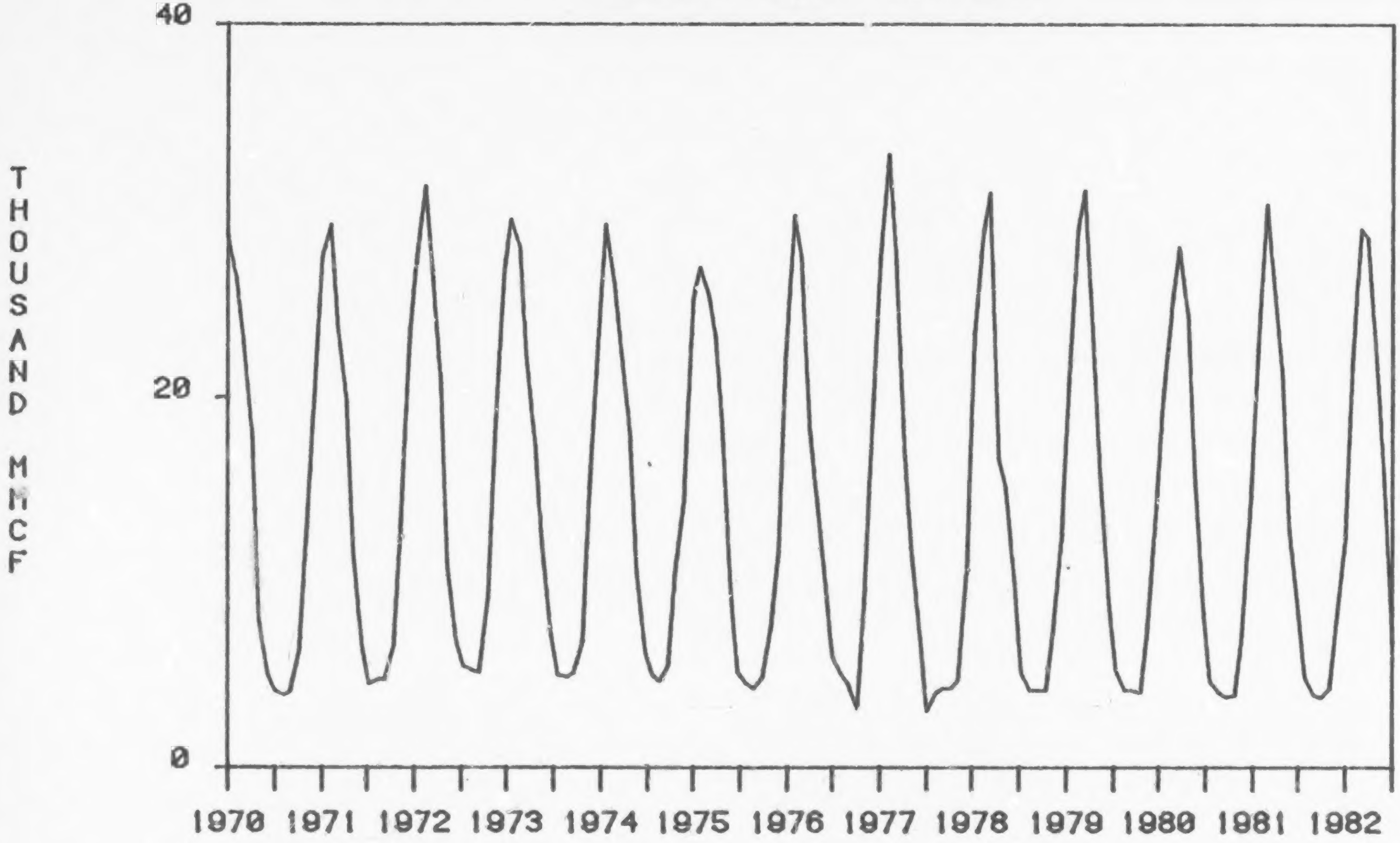
(3) A POSITIVE DEFICIENCY INDICATES SHORTAGE, A NEGATIVE DEFICIENCY INDICATES SURPLUS.

FIG. 11. MONTHLY OHIO RESIDENTIAL GAS CONSUMPTION
JANUARY 1970 - MAY 1982



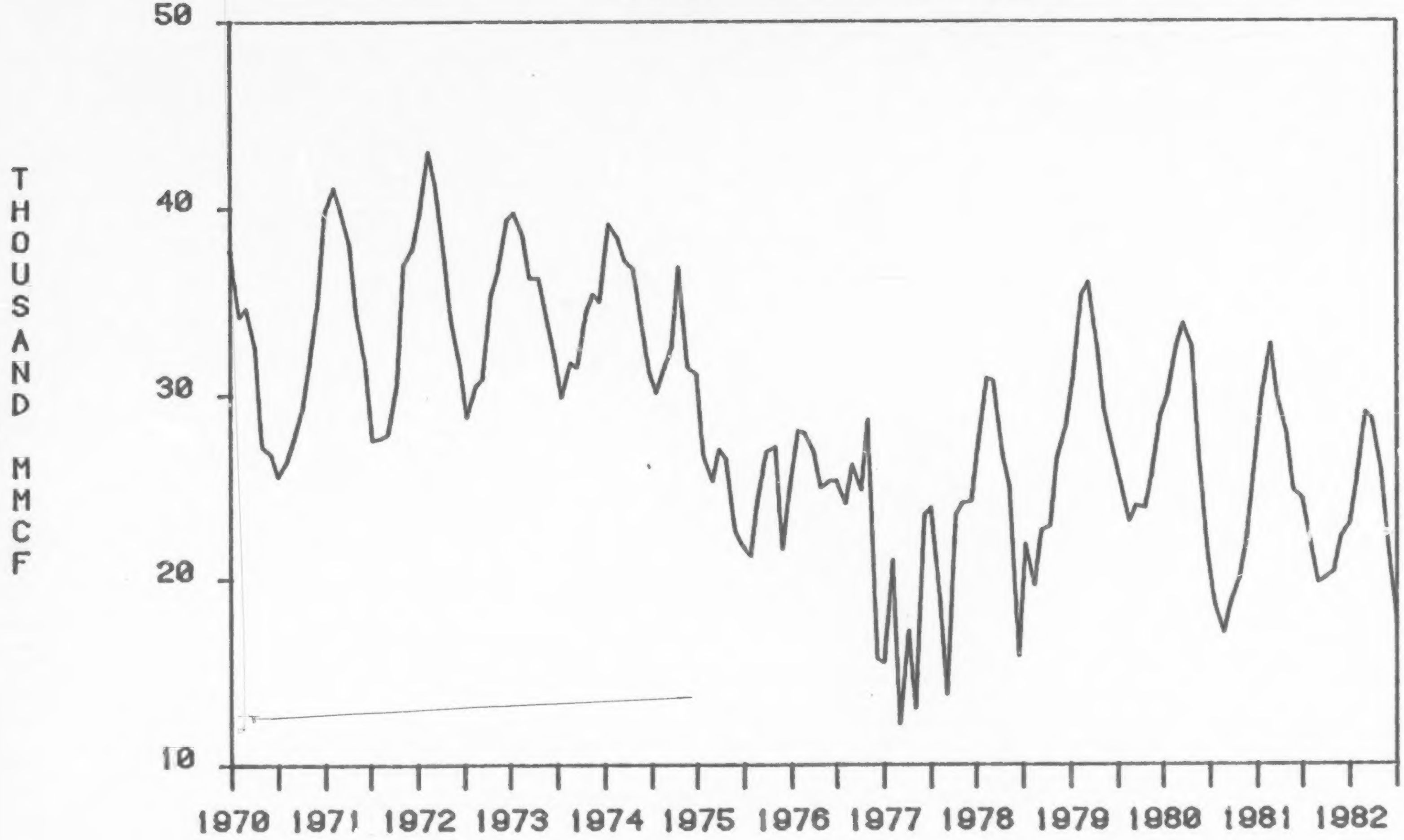
SOURCE: THE OHIO DEPARTMENT OF ENERGY.

FIG. 12. MONTHLY OHIO COMMERCIAL NATURAL GAS CONSUMPTION
JANUARY 1970 - MAY 1982



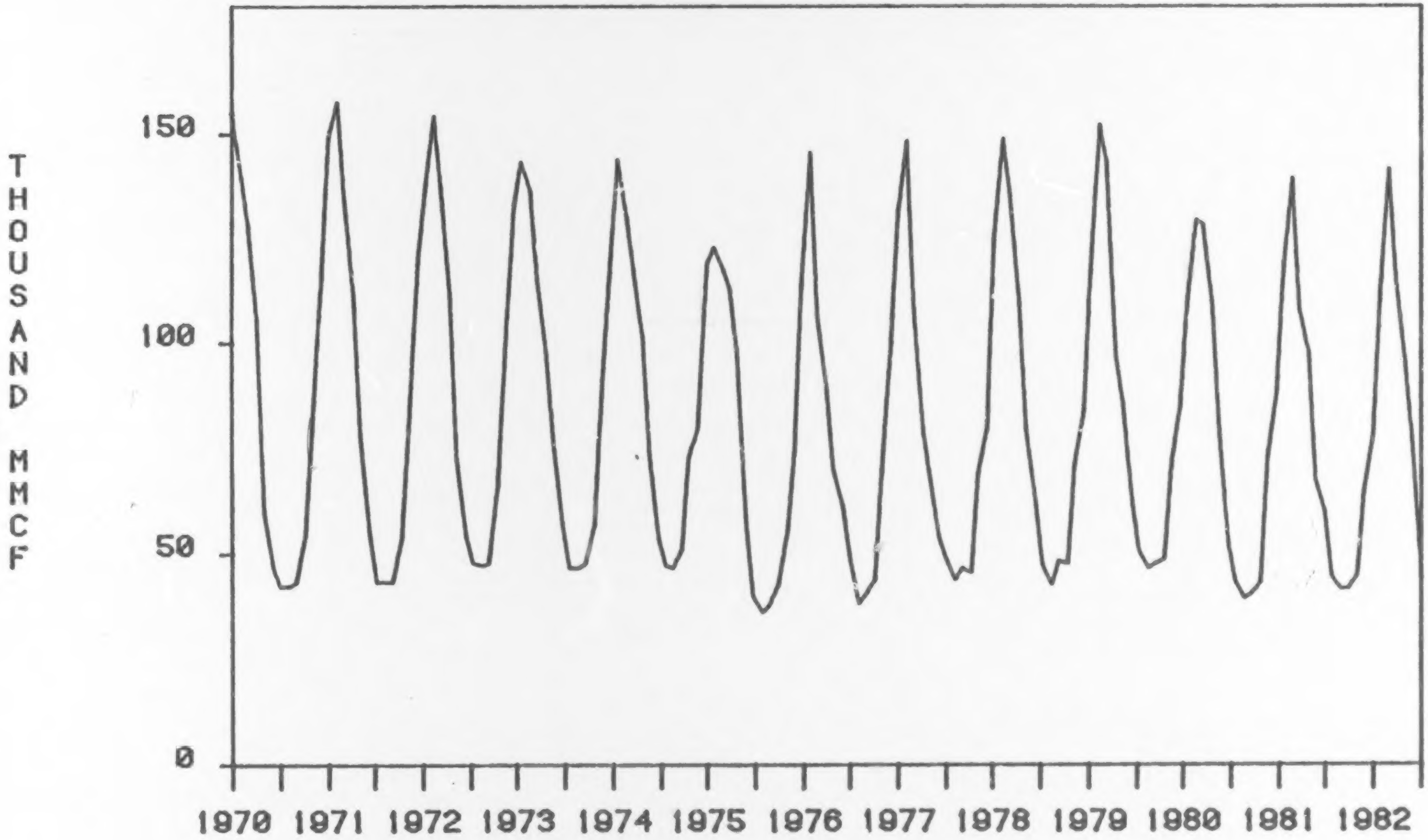
SOURCE: THE OHIO DEPARTMENT OF ENERGY.

FIG. 13. MONTHLY OHIO INDUSTRIAL NATURAL GAS CONSUMPTION JANUARY 1970 - MAY 1982



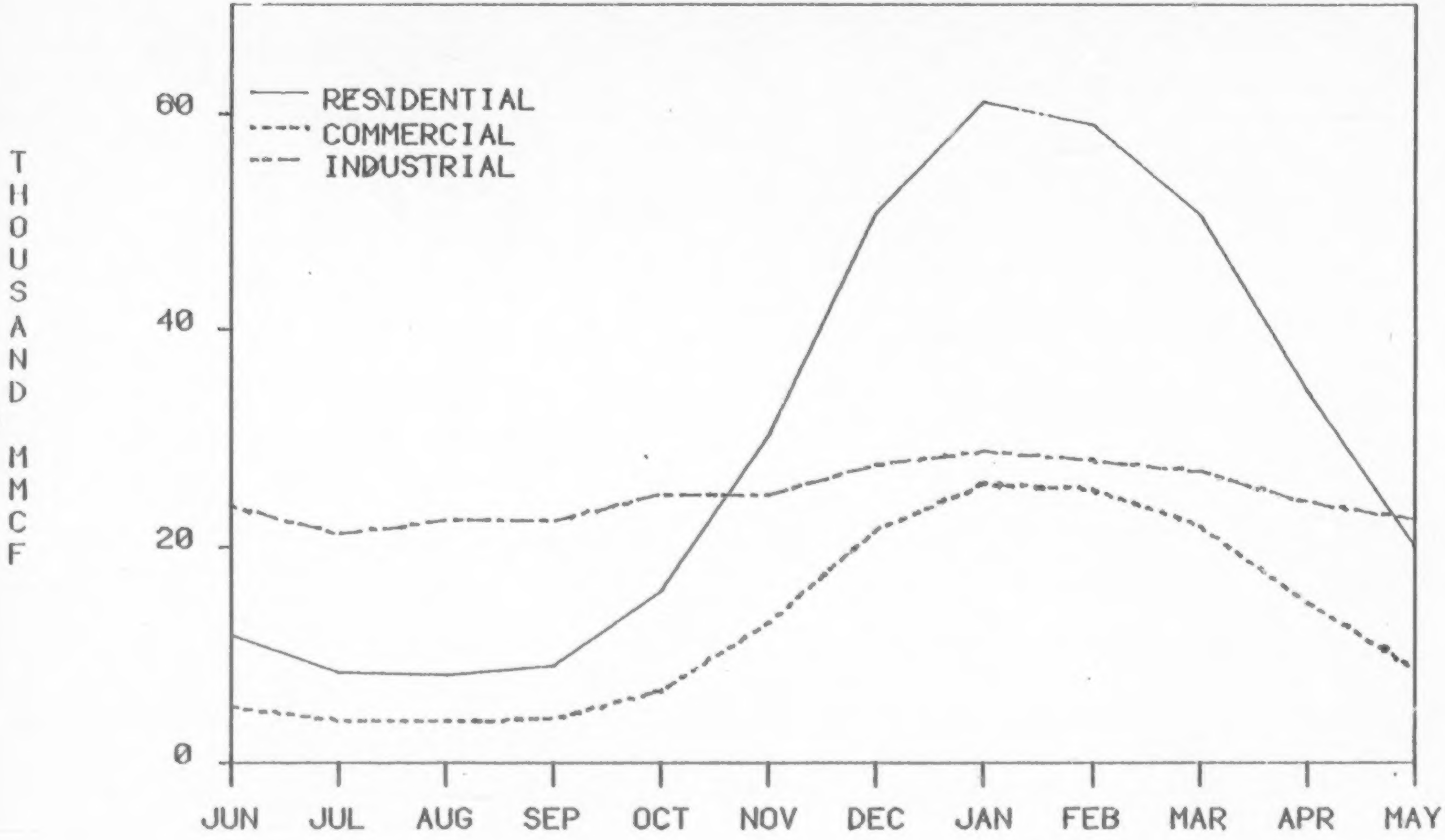
SOURCE: THE OHIO DEPARTMENT OF ENERGY.

FIG. 14. MONTHLY OHIO TOTAL NATURAL GAS CONSUMPTION
JANUARY 1970 - MAY 1982



SOURCE: THE OHIO DEPARTMENT OF ENERGY.

FIG. 15. PROJECTED GAS REQUIREMENTS FOR OHIO BY SECTOR FOR EIGHT MAJOR COMPANIES (JUNE 1982 - MAY 1983)



SOURCE: MONTHLY PROJECTIONS OF EIGHT MAJOR GAS UTILITIES AND THE OHIO DEPARTMENT OF ENERGY.

there grew a gap between the opportunity cost of natural gas as determined in international, or interstate trade, and the federally regulated wellhead price for interstate commerce. Combined with a declining ratio of current proven reserves to current consumption, this discrepancy resulted in declining supplies of natural gas for interstate commerce between 1973 and 1977, and to curtailments in industrial requirements during the same period of time. Consequently, states such as Ohio, which depend on interstate natural gas as their major source of supply, suffered from natural gas shortages during this period of time in the sense that, at the prevailing price of natural gas, supplies were not sufficient to satisfy all prospective customers. In anticipation of this situation Ohio natural gas utilities applied for and were granted a ban on new customer hookups in 1972. This ban stayed in effect until the passage of the Natural Gas Policy Act of 1978.

Historical Behavior of Industrial Requirements

As a result of the reduction in aforementioned interstate supplies, base allocations of lower priority industrial and commercial customers were curtailed between 1973-1977, which led to extensive conservation in the industrial sector, and to fuel switching.

It was hoped that with the passage of the Natural Gas Policy Act of 1978, which decontrolled some natural gas prices immediately, and which foresees the decontrol of all natural gas prices by 1985, availability of natural gas supplies to Ohio customers in general, and to Ohio industrial customers, in particular, would be enhanced. Since the ban on new customer hookups has been lifted from all Ohio utilities, there is no question that the "unavailability" of supplies is not the reason why industrial requirements have declined in 1980 and 1981. Rather, in contradistinction with the sixties, the severe recessions of 1974-75, and 1980-82 have taken their toll in reducing the level of economic activity in general, and the industrial consumption of natural gas, in particular.

It is still anticipated that as the economy recovers from the current recession, natural gas will be a preferred fuel for industrial consumption, as long as its price per Btu remains competitive with the per-Btu price of heating oil. However, in view of the deterioration of the terms of trade for the output of Ohio's basic industries, such as steel and automotive supplies, it is unlikely that 1972 levels of industrial natural gas consumption will be attained in the next ten years, barring extraordinary changes in national or international conditions.

Historical Behaviors of Residential and Commercial Requirements

Although no new customer hookups were allowed between 1972 and 1978-79, the number of residential customers in Ohio remained rather constant during this period. The number of Ohio residential natural gas customers has been increasing since 1978. However, the weather sensitivity of residential consumption during the same period of time, measured in terms of the change in the monthly volume of residential requirements as measured in MMCF per degree day per month, has been declining in the service areas of the four major Ohio natural gas utilities, as presented in Table 12. This fact is a clear reflection of the effectiveness of residential conservation measures implemented in Ohio, by ODOE and others.

There is no doubt that the major incentive for conservation in all sectors of the economy is the fact that the increases in energy costs

Table 12. Weather Sensitivity of Residential Natural Gas Consumption in Ohio (1970-1981)

MMCF/Per Heating Degree-Day

Year	Cincinnati Gas and Electric	Columbia Gas	Dayton Power and Light	East Ohio Gas
1970	6.43	21.64	5.69	22.95
1971	6.96	24.04	6.04	23.57
1972	6.95	23.81	5.77	24.22
1973	6.78	23.68	5.72	23.04
1974	6.78	23.35	5.58	24.21
1975	6.83	22.73	5.61	24.34
1976	6.34	21.22	5.04	22.52
1977	5.15	18.95	4.79	20.44
1978	5.11	18.00	4.54	19.74
1979	5.10	18.48	4.53	20.68
1980	4.77	17.91	4.28	19.26
1981	4.40	17.30	4.03	18.15

Source: O.S.U. Gas Model, monthly reports of four Ohio gas utilities and the Ohio Department of Energy.

between 1972 and 1981, eight-fold in the cost of imported oil, and four-fold in Ohio natural gas prices as indicated in Tables 19 and 20, have been far ahead of any increases in real per-capita income. So much so that maintenance of discretionary expenditures on non-energy items has required severe reductions in the levels of energy consumption by residential, commercial, and industrial customers, in the U.S. in general, and in Ohio, in particular.

The Ohio Department of Energy has been instrumental in increasing the awareness of the public opinion in Ohio about the availability, and implementation of efficient, feasible, and practical conservation measures. ODOE's leadership in providing prudent programs and services aimed to reduce the information and implementation costs to individual customers of the above mentioned types of conservation measures is one reason why conservation efforts in all sectors of Ohio have been much more successful than the national average throughout 1981. We expect 1982 to be an even better year than 1981 in terms of translating the public's need to conserve into effectual conservation.

In view of these considerations, dramatic changes in the behavior of residential and commercial natural gas requirements are not expected in the near future merely because natural gas supplies have become more abundant. We expect residential and commercial requirements to stabilize around their 1978 or 1979 levels as the economy recovers from the current recession. Major climatic changes, such as a repeat of the winter of 1976, may create temporary increases in residential or commercial demands; but unless, and until, the share of energy expenditures in household budgets are reduced back to 1972 levels through dramatic increases in real per-capita incomes, the attainment of 1972 levels of natural gas consumption does not seem to be likely in the near future.

Alternate Fuel Capability Profile

There were no natural gas curtailments in the June 1981-May 1982 annual period, and neither the reporting Ohio gas utilities nor the gas pipeline companies projected any curtailments for the June 1981-May 1983, period. Hence, there is no alternate fuel capability profile to be presented at this time.

Twelve Month Outlook

On the basis of projected natural gas supplies, and the historically established trends in natural gas requirements, the outlook for the next twelve months indicates no shortages under normal or 10 percent colder than normal weather conditions.

Utility Forecasts

Utility forecasts for the next twelve months project no deficiencies for Ohio under normal or 10 percent colder than normal weather conditions. Aggregate supply and demand projections of the eight major utilities, as presented in Table 13 and Figure 23, indicate a 0.7 percent annual surplus of natural gas supplies over requirements. All eight utilities project supply to be in excess of requirements during the 1982-83 heating season. Supply and demand projections of the individual utilities, as submitted in their "Monthly Reports of Supply and Demand of Natural Gas", are summarized in Appendix B, Table B-10.

Independent Forecast

The law which created the Ohio Department of Energy requires the development of independent ODOE forecasting capability within the

Table 13. Projected Aggregate Supply and Requirements for Natural Gas for Eight Major Utilities
(June 1982 - May 1983)
(MMCF)

Month/Year	6/82	7/82	8/82	9/82	10/82	11/82	12/82	1/83	2/83	3/83	4/83	5/83	Summer Totals	Winter Totals	Annual Totals
Supply	48,883	43,955	45,750	47,919	66,373	81,298	111,368	123,742	109,196	94,506	73,678	58,003	384,561	520,110	904,671
Demand	48,456	43,561	45,307	46,932	65,283	81,028	110,973	123,407	109,067	94,131	72,702	57,878	380,119	518,606	898,725
Deficiency	-427	-394	-443	-987	-1,090	-270	-395	-335	-129	-375	-976	-125	-4,442	-1,504	-5,946
Percent Deficiency	-0.9	-0.9	-1.0	-2.1	-1.7	-0.3	-0.4	-0.3	-0.1	-0.4	-1.3	-0.2	-1.2	-0.3	-0.7

Note: A positive deficiency indicates a shortage; a negative deficiency indicates a surplus.

Source: ODOE Form SG-1 of eight major gas utilities and the Ohio Department of Energy.

department and the preparation of independent forecasts. Independent natural gas demand forecasts prepared by ODOE for the eight major gas utilities serving Ohio are based upon time series analyses of sectoral requirements for each individual month of the year, between 1970 and 1981, adjusted for long-term annual trends or severe climatic conditions.

Such models when properly identified yield projections that possess desirable statistical properties and are deemed to be as accurate as, or more accurate than, alternative short-term forecasting techniques. They also have the added flexibility of yielding updated forecasts every time the most recent actual monthly requirements are reported to ODOE. The utilization of an adjusted time series methodology is expected to provide a double check and reduce forecasting error, and thus, lead to a more accurate and decisive diagnosis of energy requirements of the state.

The results obtained on the basis of this methodology for the 1982-83 heating season are presented in Tables 14 through 18. Although the summary results presented in Table 14 indicate a possible shortage of 3.45 percent in the case of a 10 percent colder than normal winter, the current supply or storage capacities of Ohio natural gas utilities should be able to make up for this forecast shortfall if the projected levels of requirements were to actualize. On the other hand if industrial demand continues to decline in the second half of 1982 as it has in the preceding twelve month period, then supplies may be sufficient for the state even at their presently projected levels.

The Ohio Department of Energy will be monitoring developments in the supplies and requirements of natural gas throughout the rest of the year and will take appropriate action if a critical situation were to develop. However, in the meanwhile, it is concluded that under the prevailing

Table 14. Independent Forecasts of Gas Supply and Demand for The Eight Major Ohio Gas Utilities
November 1982 - March 1983
(MMCF)

	Normal Weather			10% Colder Than Normal Weather		
	Supply	Demand	Surplus (Deficiency)	Supply	Demand	Surplus (Deficiency)
Cincinnati Gas & Electric	57,649	59,235	(1,586)	61,319	63,618	(2,299)
Columbia Gas	200,088	203,113	(3,025)	212,010	216,646	(4,636)
Dayton Power & Light	37,975	40,952	(2,977)	40,957	43,636	(2,679)
East Ohio Gas	203,948	214,715	(10,767)	215,950	227,019	(11,069)
National Gas	7,100	5,361	1,739	7,200	5,736	1,464
Ohio Gas	4,756.4	4,756.4	0	5,108	5,108	--
River Gas	3,212	3,212	0	3,376	3,376	--
West Ohio Gas	8,078	8,078	0	8,602	8,602	--
Total	522,806.4	539,422.4	(16,616)	554,522	573,741	(19,219)

Note: Numbers within parentheses indicate deficiency.

Source: July 1982 ODOE Form SG-2 of reporting utilities, and the Ohio Department of Energy.

Table 15. Independent Forecasts of Gas Supply and Demand for Cincinnati Gas and Electric Company
November 1982 - March 1983
(MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD	Demand	Surplus (Deficiency)	Supply	HDD	Demand	Surplus (Deficiency)
November 1982	8,855	636	8,179	676	9,402	700	8,737	665
December 1982	13,072	970	12,387	685	13,906	1,067	13,331	575
January 1983	12,620	1,051	14,401	(1,781)	13,524	1,156	15,518	(1,994)
February 1983	12,199	888	13,157	(958)	12,963	977	14,140	(1,177)
March 1983	10,903	722	11,111	(208)	11,524	794	11,892	(368)
Total	57,649		59,235	(1,586)	61,319		63,618	(2,299)

Notes: Totals may not add due to independent rounding.
HDD - Heating Degree-Days.
Numbers within parentheses indicate deficiency.

Source: Cincinnati Gas & Electric's July 1982 ODOE Form SG-2, and the Ohio Department of Energy.

Table 16. Independent Forecasts of Gas Supply and Demand for Columbia Gas of Ohio
November 1982 - March 1983
(MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD	Demand	Surplus (Deficiency)	Supply	HDD	Demand	Surplus (Deficiency)
November 1982	31,138	570	30,161	977	32,463	627	31,810	653
December 1982	43,053	951	41,500	1,553	45,441	1,046	44,270	1,171
January 1983	49,642	1,173	51,080	(1,438)	52,644	1,296	54,712	(2,068)
February 1983	41,342	1,102	43,892	(2,550)	44,199	1,212	46,960	(2,761)
March 1983	34,913	918	36,480	(1,567)	37,263	1,010	38,894	(1,631)
Total	200,088		203,113	(3,025)	212,010		216,646	(4,636)

Notes: Totals may not add due to independent rounding.
HDD - Heating Degree-Days.
Numbers within parentheses indicate deficiency.

Source: Cincinnati Gas & Electric's July 1982 ODOE Form SG-2, and the Ohio Department of Energy.

Table 17. Independent Forecasts of Gas Supply and Demand for Dayton Power & Light Company

November 1982 - March 1983

(MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD	Demand	Surplus (Deficiency)	Supply	HDD	Demand	Surplus (Deficiency)
November 1982	5,427	495	5,285	142	5,752	545	5,637	115
December 1982	7,451	868	8,020	(569)	8,023	955	8,351	(328)
January 1983	8,770	1,132	10,424	(1,654)	9,518	1,245	11,030	(1,512)
February 1983	9,079	1,131	10,004	(925)	9,828	1,244	10,835	(1,007)
March 1983	7,248	887	7,219	29	7,836	976	7,783	53
Total	37,975		40,952	(2,977)	40,957		43,636	(2,679)

Notes: Totals may not add due to independent rounding.
HDD - Heating Degree-Days.
Numbers within parentheses indicate deficiency.

Source: Cincinnati Gas & Electric's July 1982 ODOE Form SG-2, and the Ohio Department of Energy.

Table 18. Independent Forecasts of Gas Supply and Demand for East Ohio Gas Company November 1982 - March 1983 (MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD	Demand	Surplus (Deficiency)	Supply	HDD	Demand	Surplus (Deficiency)
November 1982	32,568	534	32,463	105	34,300	587	33,618	682
December 1982	43,870	983	44,219	(349)	46,547	1,081	46,456	91
January 1983	48,202	1,197	53,595	(5,393)	51,139	1,317	56,585	(5,446)
February 1983	42,205	1,155	45,891	(3,686)	44,709	1,271	49,893	(5,184)
March 1983	37,103	954	38,547	(1,444)	39,255	1,049	40,467	(1,212)
Total	203,948		214,715	(10,767)	215,950		227,019	(11,069)

Notes: Totals may not add due to independent rounding.
HDD - Heating Degree-Days
Numbers within parentheses indicate deficiency.

Source: Cincinnati Gas & Electric's July 1982 ODOE Form SG-2, and the Ohio Department of Energy.

Table 19. Ohio Natural Gas Prices in Current Dollars, 1970-1980
($ Per MMBtu)

Year	Residential	Commercial	Industrial
1970	0.84	0.73	0.52
1971	0.96	0.81	0.56
1972	1.02	0.86	0.62
1973	1.08	0.94	0.65
1974	1.23	1.07	0.85
1975	1.51	1.35	1.12
1976	1.79	1.63	1.43
1977	2.23	2.07	1.95
1978	2.43	2.24	2.05
1979	2.78	2.57	2.32
1980	3.45	3.23	2.97
1981	3.87	3.65	3.41

Note: Figures for 1981 are ODOE estimates.

Source: American Gas Association's Gas Facts and the Ohio Department of Energy.

Table 20. Ohio Natural Gas Prices in Constant Dollars, 1970-1980
(Dollars per MMBtu)
(1967 = 100)

Year	Residential	Commercial	Industrial
1970	.72	.63	.45
1971	.78	.67	.47
1972	.81	.69	.49
1973	.81	.71	.46
1974	.83	.72	.58
1975	.94	.84	.69
1976	1.05	.96	.84
1977	1.23	1.14	1.07
1978	1.24	1.15	1.05
1979	1.28	1.18	1.07
1980	1.40	1.31	1.20
1981	1.42	1.34	1.25

Note: All prices are stated in terms of 1967 dollars. Figures for 1981 are ODOE estimates.

Source: Gas Facts, the American Gas Association; Survey of Current Business, U.S. Department of Commerce, April 1982.

conditions no shortages or curtailments of natural gas are to be expected during the 1982-83 heating season.

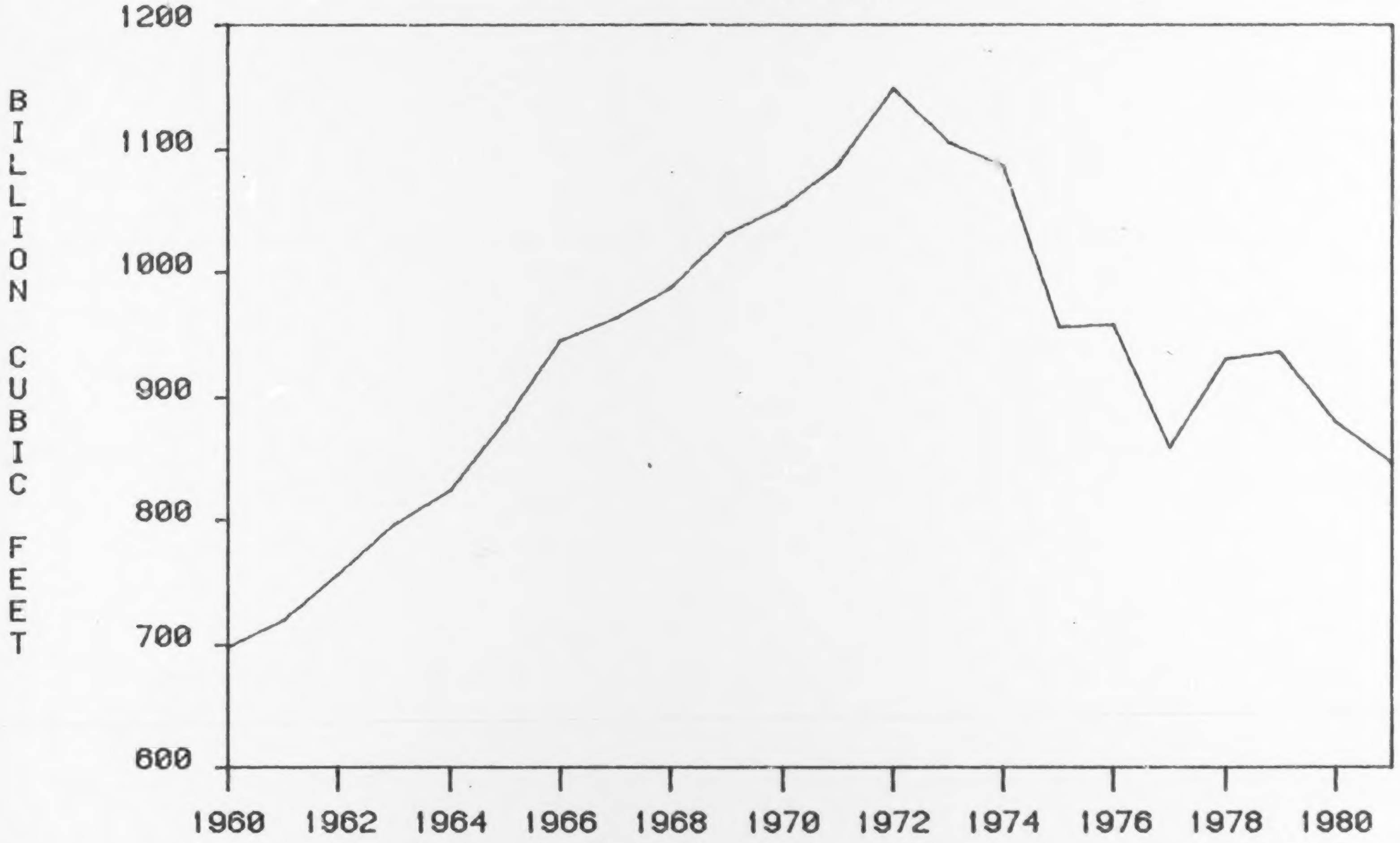
Independent forecasts of the four large utilities' total requirements for the annual period June 1982-May 1983, are presented in Appendix B, Tables B-1 through B-4. In Tables B-5 through B-8 of Appendix B, we present twelve month forecasts of sectoral end-use requirements for the state as a whole. The forecasts included in Tables B-5 through B-8 have also been adjusted for the long-term historical trends observed in sectoral natural gas requirements in Ohio.

Quantitative Analyses of Historical Natural Gas Requirements in Ohio

As indicated in Figures 16 through 22, the behavior of annual natural gas disposition, in all sectors of Ohio, has displayed distinctly different trends, during the sixties and early seventies, as opposed to the rest of the seventies and the early eighties. Such discontinuous time variant trends characterize the behavior of almost all sectoral energy disposition in Ohio as well as the nation.

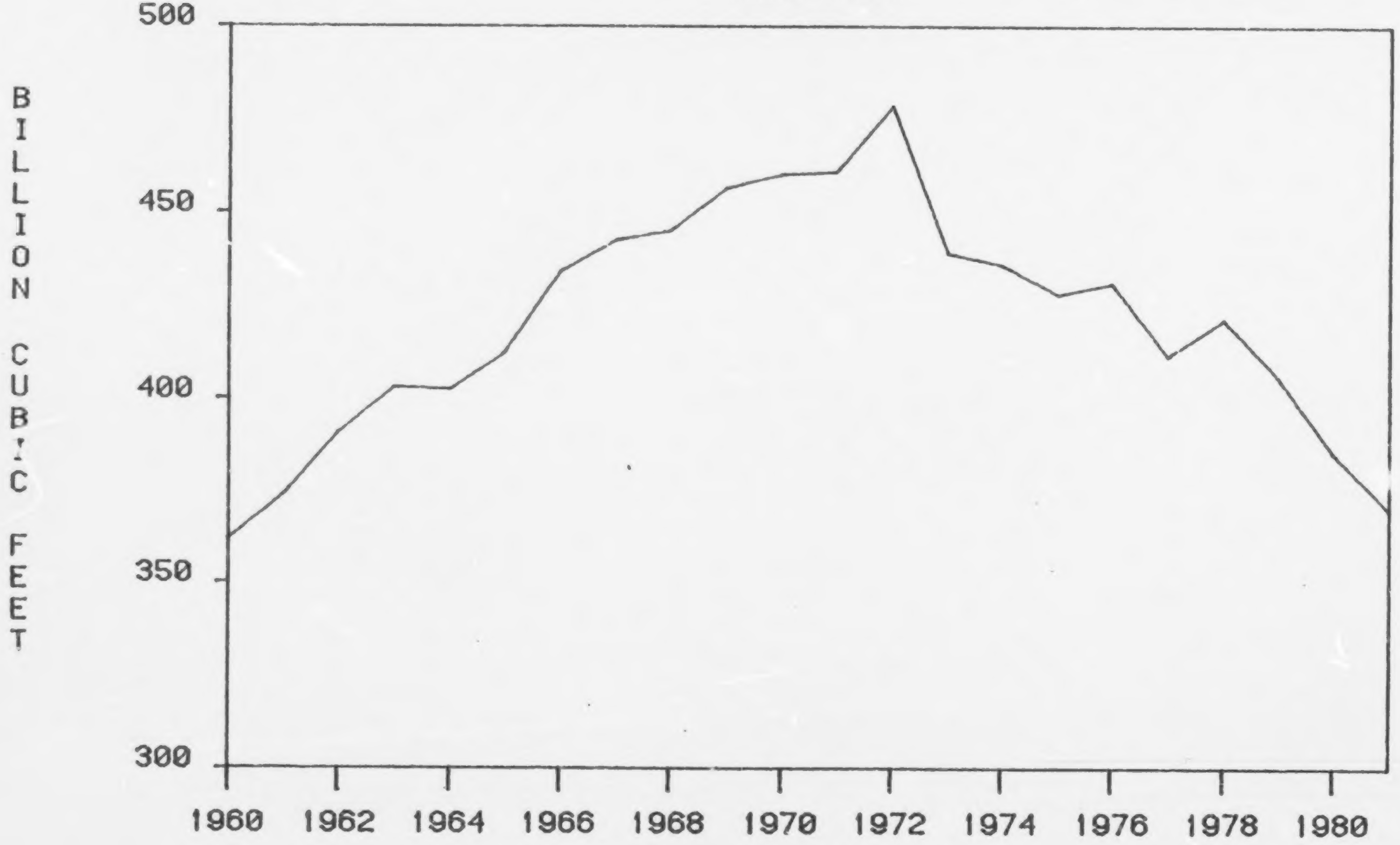
At the Ohio Department of Energy we have developed an analytical methodology for the modeling and assessment of discontinuous time variant trends in annual economic data series, in general, and in annual energy data series, in particular. As a result of this development we are in a better position to distinguish between temporary deviations from established trends, such as those due to recessions or severe climatic conditions, and changes in established long-term trends. Continued application of this methodology will lead to increased understanding of the systemic factors which are responsible for the observed discontinuities in the historical time paths of the corresponding data series. Extraction of such critical information from historical observation will invariably

FIGURE 16. OHIO TOTAL NATURAL GAS CONSUMPTION
1960-1981



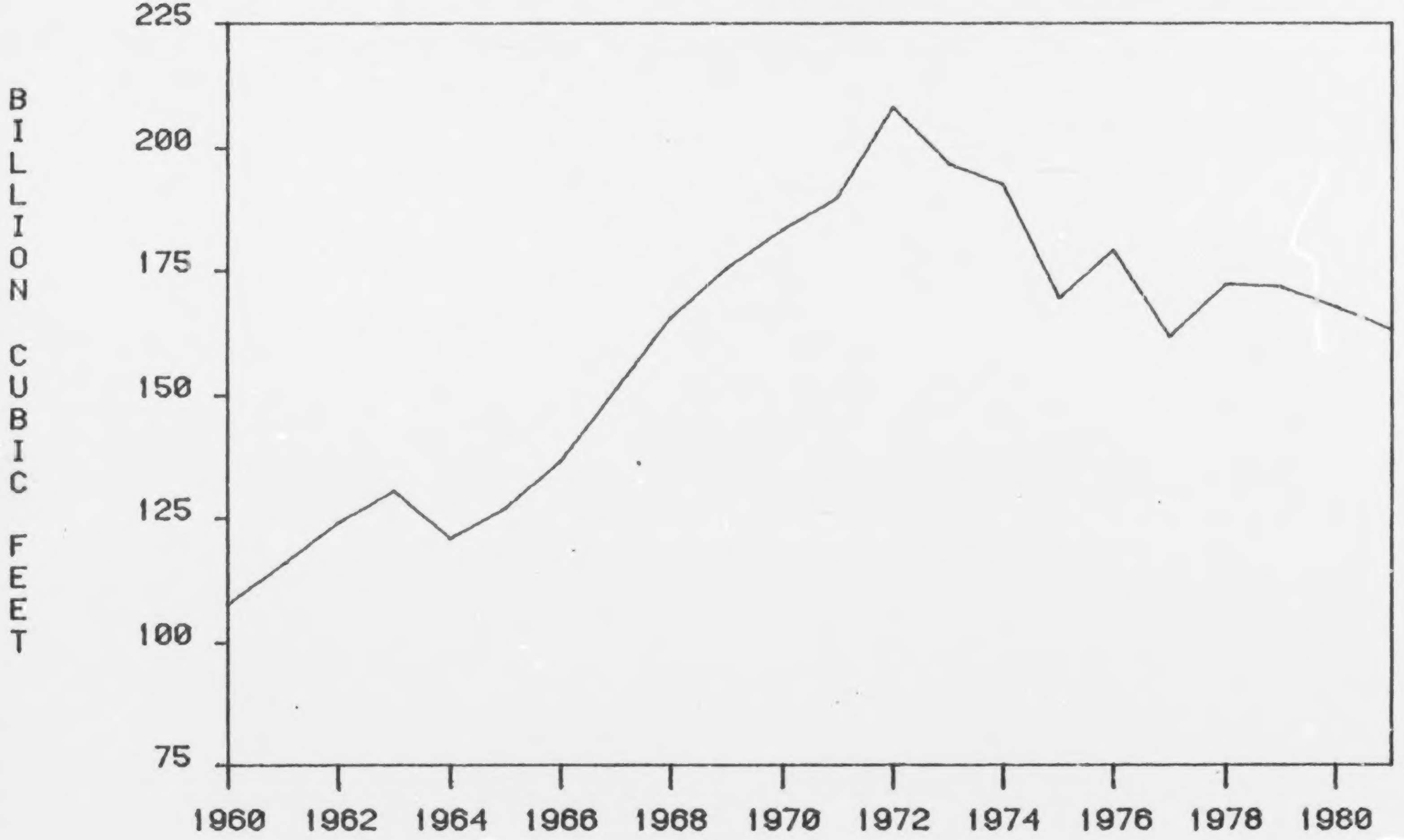
SOURCE: OHIO DEPARTMENT OF ENERGY.

FIGURE 17. OHIO RESIDENTIAL NATURAL GAS CONSUMPTION
1960-1981



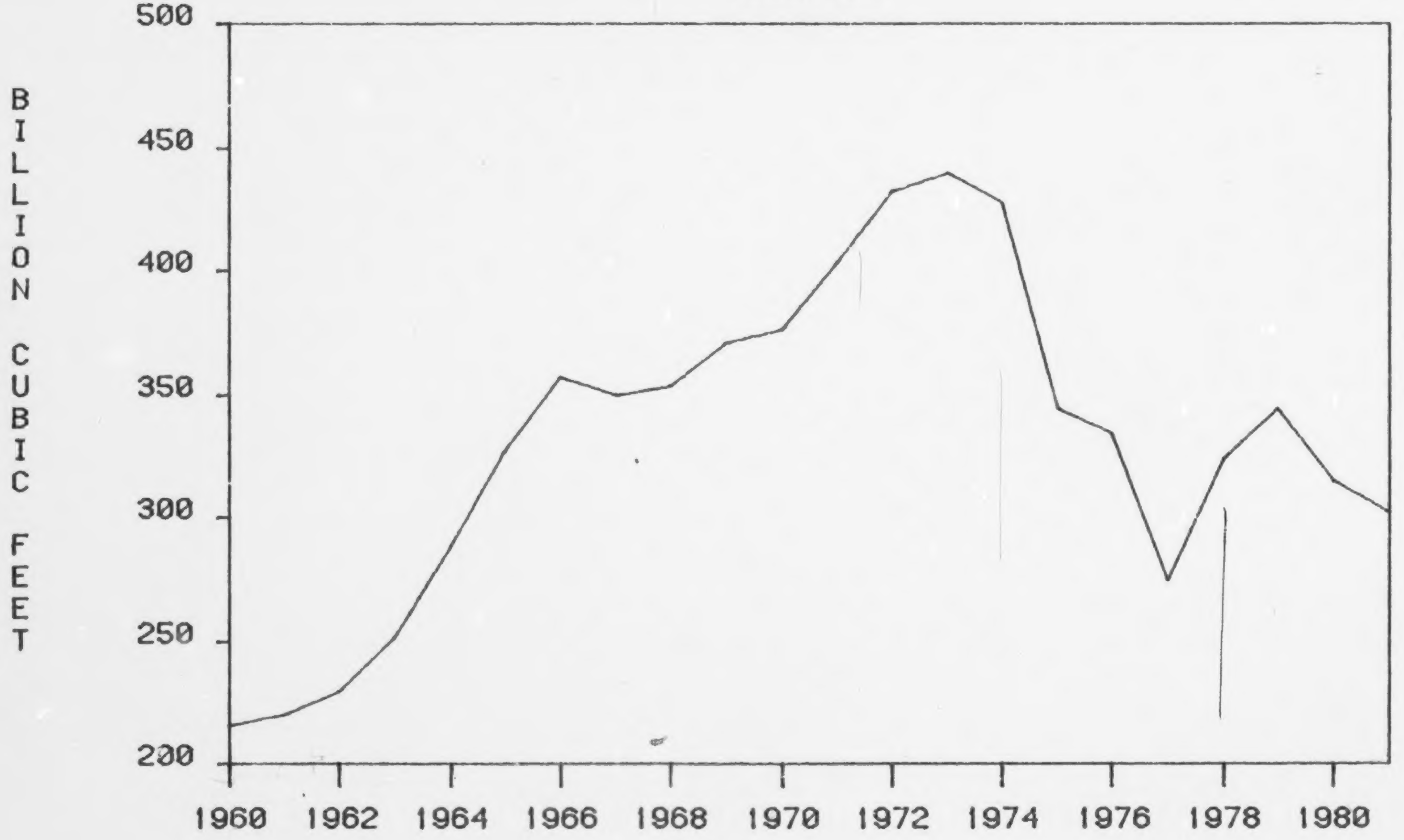
SOURCE: OHIO DEPARTMENT OF ENERGY.

FIGURE 18. OHIO COMMERCIAL NATURAL GAS CONSUMPTION
1960-1981



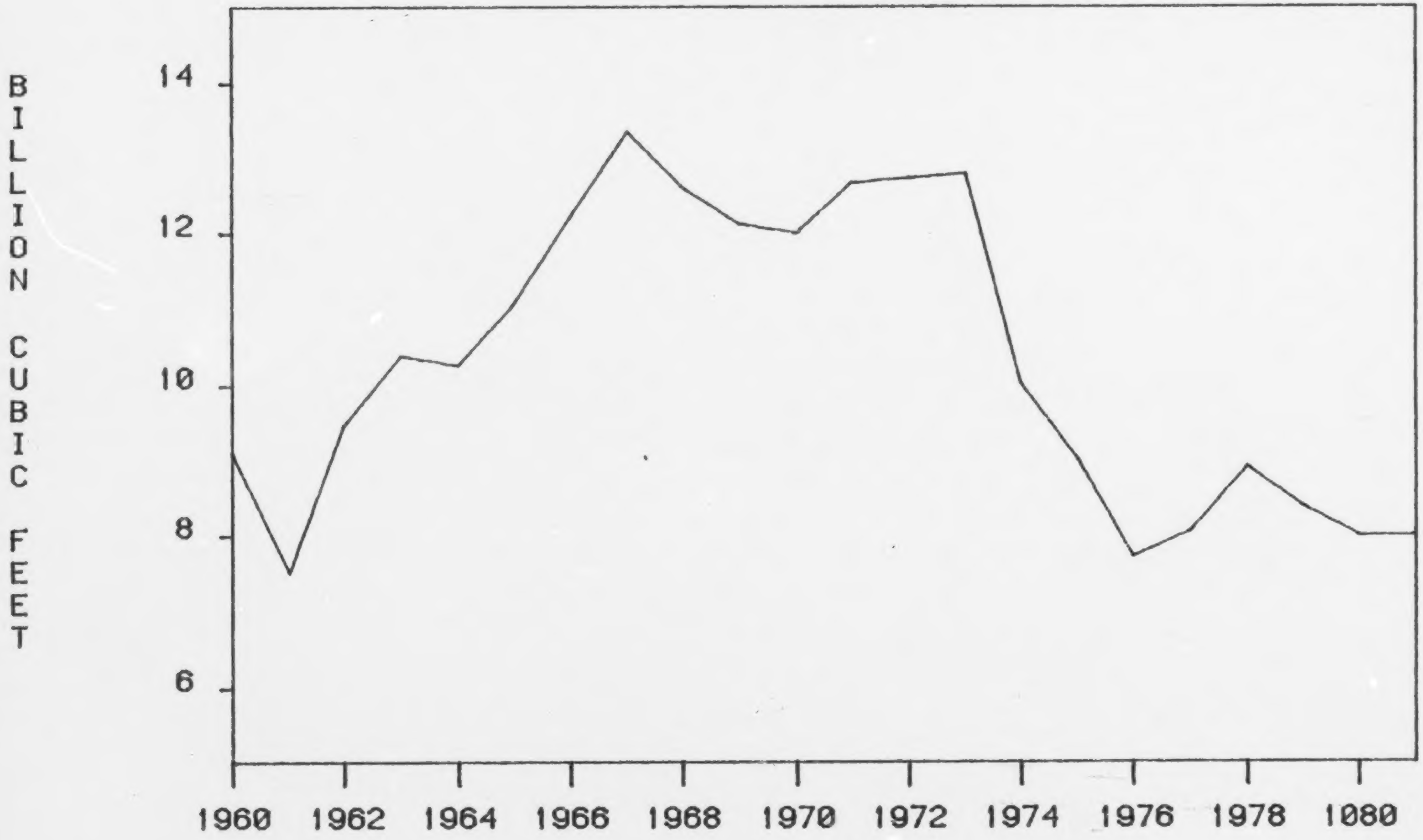
SOURCE: OHIO DEPARTMENT OF ENERGY.

FIGURE 19. OHIO INDUSTRIAL NATURAL GAS CONSUMPTION 1960-1981



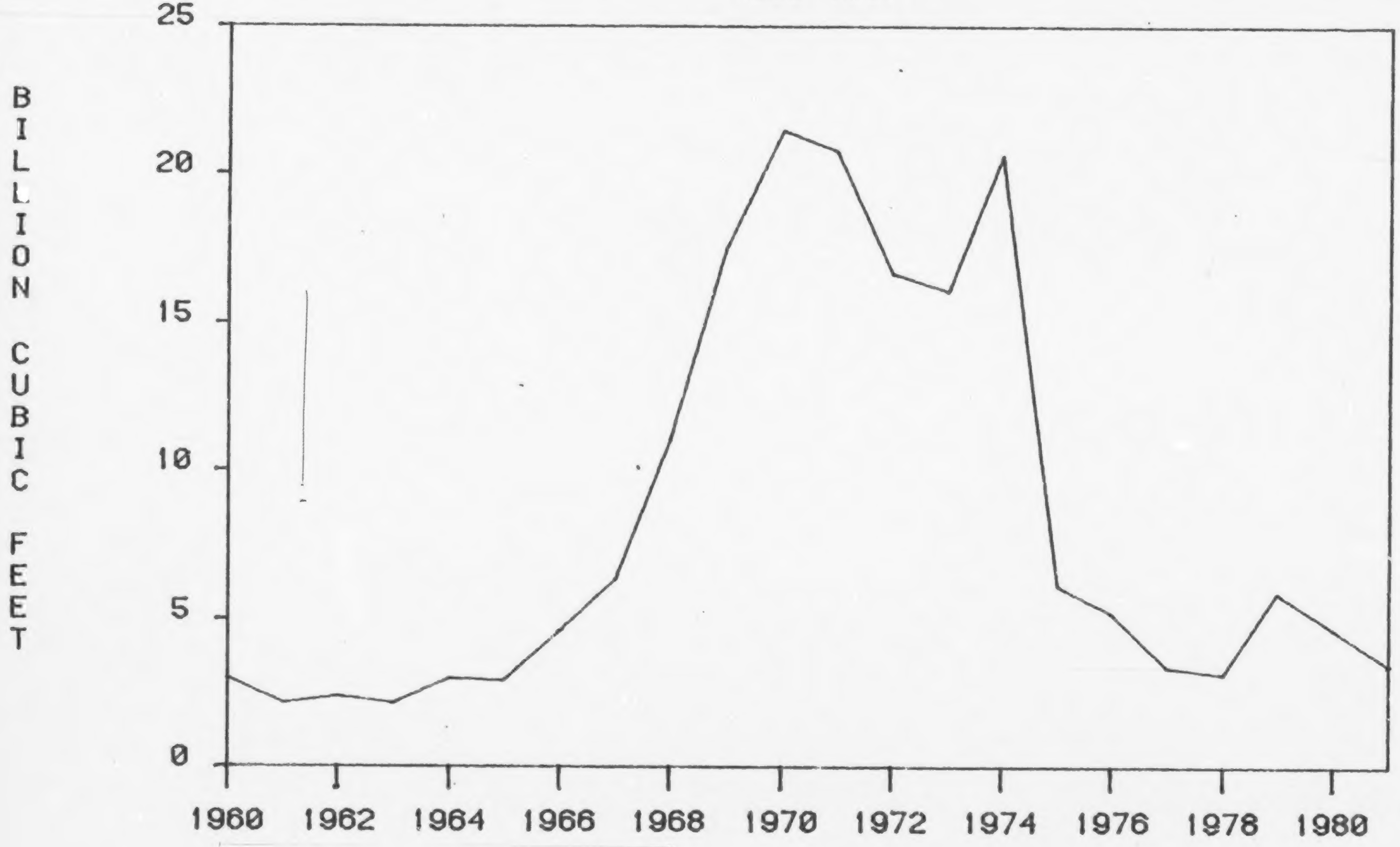
SOURCE: OHIO DEPARTMENT OF ENERGY.

FIGURE 20. OHIO TRANSPORTATION NATURAL GAS CONSUMPTION
1960-1981



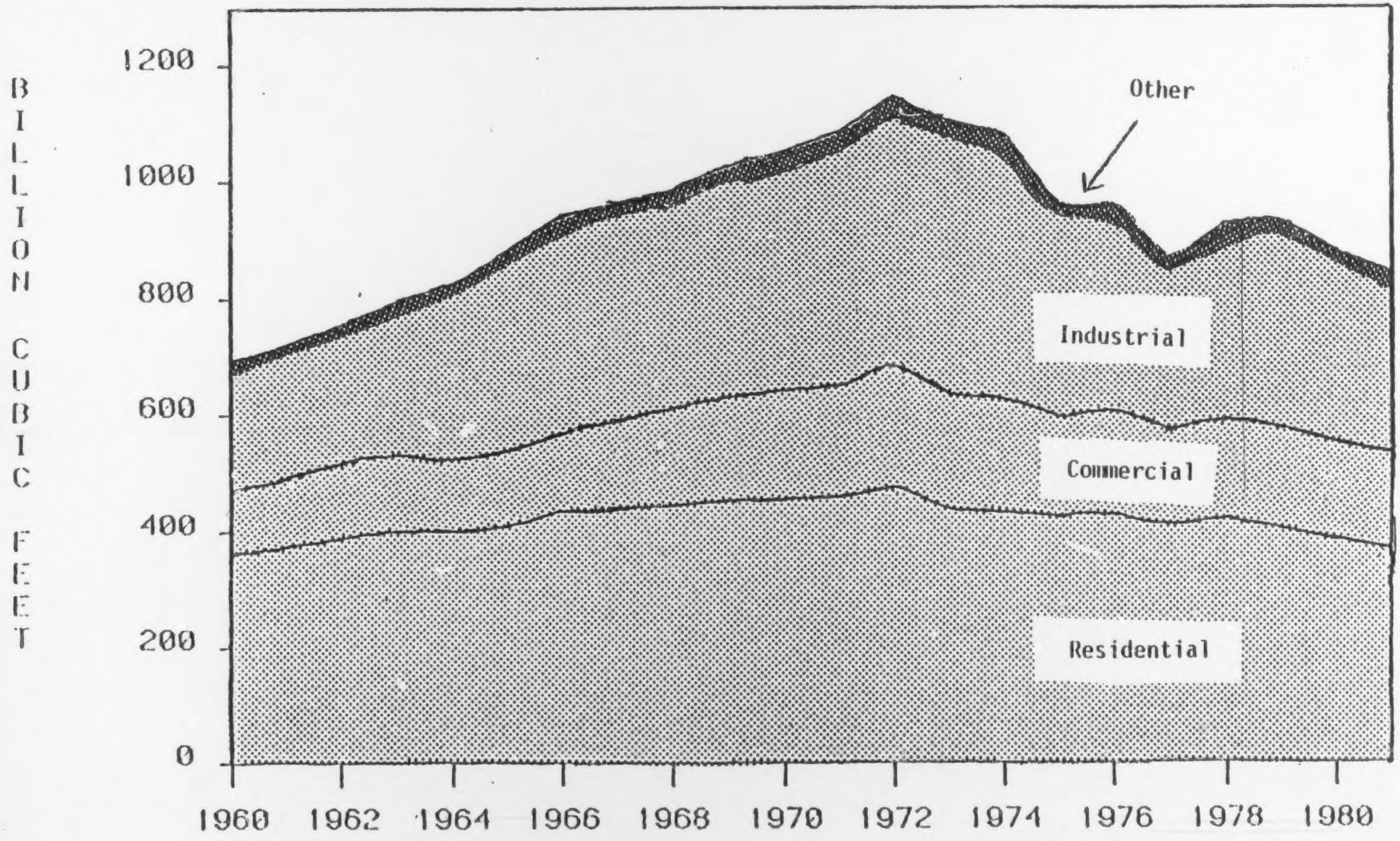
SOURCE: OHIO DEPARTMENT OF ENERGY.

FIGURE 21. OHIO ELECTRIC UTILITY NATURAL GAS CONSUMPTION 1960-1981



SOURCE: OHIO DEPARTMENT OF ENERGY.

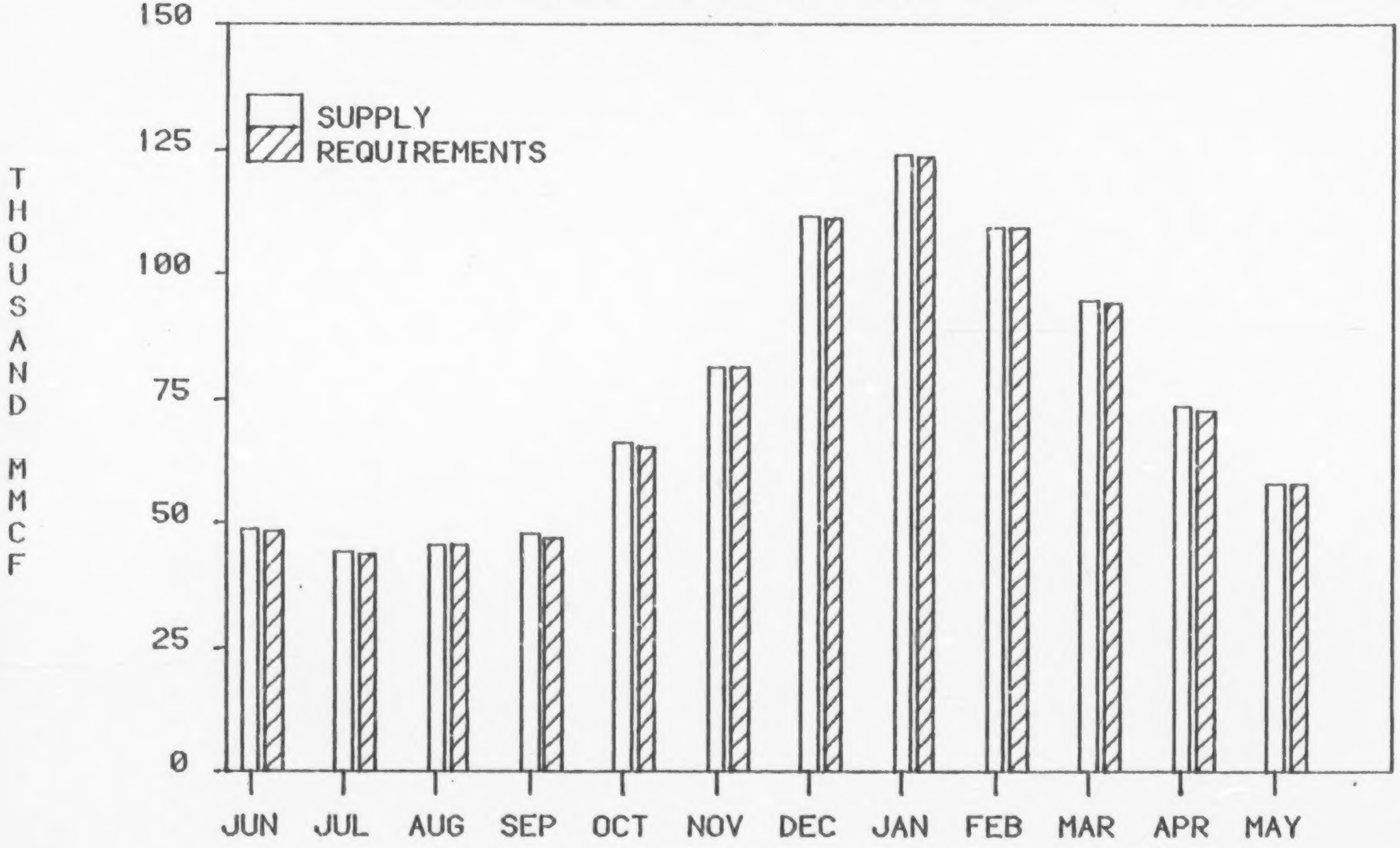
FIGURE 22. OHIO NATURAL GAS CONSUMPTION BY SECTOR
1960-1981



NOTE: "OTHER" INCLUDES TRANSPORTATION AND ELECTRIC UTILITY CONSUMPTION.

SOURCE: OHIO DEPARTMENT OF ENERGY.

FIG. 23. PROJECTED SUPPLY AND REQUIREMENTS OF NATURAL GAS EIGHT MAJOR COMPANIES (JUNE 1982 - MAY 1983)



lead to more accurate forecasts of Ohio's future energy requirements by sector or by fuel type, and help identify possible shortages before they develop into critical proportions.

A simultaneous time path model of historical natural gas end-user requirements in Ohio is presented in Tables 21 and 21A, with sectoral end-user requirement forecasts for calendar year 1983 included in Table 22.

The estimated parameters of the model describe the dynamic behavior of the magnitudes of systemic trends in Ohio sectoral natural gas requirements between 1960-1981, as well as the magnitudes of significant temporary deviations from such established trends. Such temporary deviations are interpreted to reflect the magnitude of systemic responses to temporary alterations in the historically determined "normal" operating conditions of the sectoral system in question. They may also reflect possible alterations in the methods of measurement and in the accounting procedures involved in data collection and reporting practices, which may not be known at this time. We have made every effort possible to keep the data definitions employed consistent over the domain of time under consideration. It is quite evident that the much heralded Natural Gas Deregulation Act of 1978 has resulted in temporary increases in the level of industrial and residential requirements in 1979, which have been subsequently offset by the recession of 1980-82, and the rapid rise in natural gas prices.

As far as long-term trends are concerned, it is clear that the annual rates of change of natural gas requirements have been positive for all sectors between 1960 and 1970. They have become negative for all sectors between 1970 and 1972, and have remained negative to date. It is

Table 21. Integrated Time Path Models of Ohio Sectoral Natural Gas Requirements

```
MODEL:   RS
DEP VAR: NGRSBOH

                          PARAMETER      STANDARD                       APPROX             VARIABLE
VARIABLE           DF      ESTIMATE         ERROR       T RATIO       PROB>|T|              LABEL

INTERCEPT           1    377.536043      3.088721      122.2305         0.0001
T                   1     10.512316      0.453848       23.1626         0.0001
T10                 1    -19.030983      0.780816      -24.3732         0.0001
D72                 1     33.284971      4.205672        7.9143         0.0001
D7879               1     16.530075      3.519308        4.6970         0.0002
---------------------------------------------------------------------------------

MODEL:   CX
DEP VAR: NGCXBOH

                          PARAMETER      STANDARD                       APPROX             VARIABLE
VARIABLE           DF      ESTIMATE         ERROR       T RATIO       PROB>|T|              LABEL

INTERCEPT           1    107.411774      1.730246       62.0789         0.0001
T                   1     10.499702      0.276837       37.9273         0.0001
DUMC                1    -24.680039      2.047537      -12.0535         0.0001
T12                 1    -15.194288      0.507964      -29.9121         0.0001
D75                 1    -18.979425      2.577284       -7.3641         0.0001
D77                 1    -18.031006      2.924993       -6.1645         0.0001
---------------------------------------------------------------------------------

MODEL:   IX
DEP VAR: NGIXBOH

                          PARAMETER      STANDARD                       APPROX             VARIABLE
VARIABLE           DF      ESTIMATE         ERROR       T RATIO       PROB>|T|              LABEL

INTERCEPT           1    221.539364      3.983331       55.6166         0.0001
T                   1     11.099149      1.291768        8.5922         0.0001
T3                  1     24.680039      2.271539       10.8649         0.0001
T6                  1    -29.084175      2.215156      -13.1296         0.0001
T10                 1     24.168378      0.972484       24.8522         0.0001
T12                 1    -37.451528      1.628333      -22.9999         0.0001
DUM9                1    -76.544052      6.384370      -11.9893         0.0001
D77                 1    -55.652702      6.563217       -8.4795         0.0001
D79                 1     25.013963      5.721586        4.3719         0.0008
---------------------------------------------------------------------------------

MODEL:   OX
DEP VAR: NGOXBOH

                          PARAMETER      STANDARD                       APPROX             VARIABLE
VARIABLE           DF      ESTIMATE         ERROR       T RATIO       PROB>|T|              LABEL

INTERCEPT           1     10.681714      0.872195       12.2469         0.0001
T                   1      0.863376      0.221170        3.9037         0.0011
T6                  1      3.602750      0.439816        8.1915         0.0001
```

Table 21. Integrated Time Path Models of Ohio Sectoral Natural Gas Requirements (Cont'd)

```
                             PARAMETER     STANDARD                    APPROX           VARIABLE
VARIABLE           DF         ESTIMATE        ERROR       T RATIO    PROB>|T|            LABEL

T10                 1        -5.137394     0.389489      -13.1901      0.0001
DUM9                1       -15.040200     1.463192      -10.2790      0.0001
-------------------------------------------------------------------------------

MODEL:    TT
DEP VAR:  NGTTBOH

                             PARAMETER     STANDARD                    APPROX           VARIABLE
VARIABLE           DF         ESTIMATE        ERROR       T RATIO    PROB>|T|            LABEL

INTERCEPT           1       717.168895     4.313958      166.2438      0.0001
T                   1        32.974544     1.264980       26.0673      0.0001
T4                  1        24.680039     2.469423        9.9943      0.0001
T6                  1       -25.481425     2.492416      -10.2236      0.0001
D72                 1        33.284971     5.228337        6.3663      0.0001
T12                 1       -52.645816     1.580652      -33.3064      0.0001
DUM9                1       -91.584252     7.487921      -12.2309      0.0001
D75                 1       -18.979425     3.108321       -6.1060      0.0001
D77                 1       -73.683708     5.972449      -12.3373      0.0001
D79                 1        25.013963     6.220019        4.0215      0.0020
D7879               1        16.530075     4.375074        3.7782      0.0031
```

Table 21-A. (Statistical Summary) Integrated Time Path Models of Ohio Sectoral Natural Gas Requirements

```
                                COVARIANCE ACROSS MODELS

                  RS.NGRSBOH     CX.NGCXBOH     IX.NGIXBOH     OX.NGOXBOH     TT.NGTTBOH

RS.NGRSBOH        25.69265876    -8.55416313    -7.22324186    -0.93335727    10.27009912
CX.NGCXBOH        -8.55416313     8.49432485    -3.94093458     0.39206602    -4.97012441
IX.NGIXBOH        -7.22324186    -3.94093458    23.97601631     1.38768609    13.10568751
OX.NGOXBOH        -0.93335727     0.39206602     1.38768609     1.54560331     1.17427170
TT.NGTTBOH        10.27009912    -4.97012441    13.10568751     1.17427170    24.00711653

                                CORRELATION ACROSS MODELS

                  RS.NGRSBOH     CX.NGCXBOH     IX.NGIXBOH     OX.NGOXBOH     TT.NGTTBOH

RS.NGRSBOH         1.00000000    -0.57904001    -0.29103091    -0.14811341     0.41352342
CX.NGCXBOH        -0.57904001     1.00000000    -0.27615078     0.10820461    -0.34804294
IX.NGIXBOH        -0.29103091    -0.27615078     1.00000000     0.22795740     0.54626238
OX.NGOXBOH        -0.14811341     0.10820461     0.22795740     1.00000000     0.19277450
TT.NGTTBOH         0.41352342    -0.34804294     0.54626238     0.19277450     1.00000000

                                INV CORRELATION ACROSS MODELS

                  RS.NGRSBOH     CX.NGCXBOH     IX.NGIXBOH     OX.NGOXBOH     TT.NGTTBOH

RS.NGRSBOH         6.20855108     3.52167715     4.97214882     0.19453651    -4.09528595
CX.NGCXBOH         3.52167715     3.20266182     3.01070780    -0.13330007    -1.96057171
IX.NGIXBOH         4.97214882     3.01070780     5.46982180    -0.06839266    -3.98301793
OX.NGOXBOH         0.19453651    -0.13330007    -0.06839266     1.11760969    -0.30492586
TT.NGTTBOH        -4.09528595    -1.96057171    -3.98301793    -0.30492586     4.24568831

                                INV COVARIANCE ACROSS MODELS

                  RS.NGRSBOH     CX.NGCXBOH     IX.NGIXBOH     OX.NGOXBOH     TT.NGTTBOH

RS.NGRSBOH         0.24164689     0.23838591     0.20033235     0.03087078    -0.16489584
CX.NGCXBOH         0.23838591     0.37703548     0.21096755    -0.03678891    -0.13729297
IX.NGIXBOH         0.20033235     0.21096755     0.22813722    -0.01123497    -0.16601745
OX.NGOXBOH         0.03087078    -0.03678891    -0.01123497     0.72308961    -0.05005820
TT.NGTTBOH        -0.16489584    -0.13729297    -0.16601745    -0.05005820     0.17685124

WARNING: DEGREES OF FREEDOM NOT ADJUSTED FOR RESTRICTIONS

WEIGHTED MEAN SQUARE ERROR FOR SYSTEM =     1.122050  WITH     87 DFS

WEIGHTED R-SQUARE FOR SYSTEM = 0.9964
THIS IS THE R-SQUARE THAT CORRESPONDS TO THE APPROXIMATE F TEST ON ALL NON-INTERCEPT PARAMETERS IN THE SYSTEM.
```

Table 22. Independent Forecast of Annual Natural Gas End Use Requirements, Calendar Year 1983
(MMCF)

	Actual* 1981	Lower 95% Confidence Limit	Forecast** 1983	Upper 95% Confidence Limit	Forecast % Change
Residential	369.89	349.62	360.35	371.08	-2.6
Commercial	163.12	150.97	157.14	163.31	-3.7
Industrial	301.72	279.06	289.43	299.8	-4.1
Other*	11.5	8.92	11.56	14.2	0.5
Total	846.23	808.11***	818.48	828.85***	-3.3

Source: Ohio Department of Energy.

*Other includes transportation and electric utilities sectors.

**Industrial forecast is based on the presumption that average unemployment during the rest of 1982 and throughout 1983 will remain above 9%.

***The confidence limits for the total are not equal to the sum of the confidence limits of its components by definition of the statistical concepts involved.

also clear that the recession of 1975 has resulted in a permanent decrease in the level of annual industrial natural gas requirements.

As mentioned previously, any upturn in sectoral natural gas consumption rates will probably require significant increases in real state income relative to the real expenditures of natural gas by the respective sectoral end-users. Although it is clear that negative rates of growth cannot be sustained forever, and it is also clear that the current levels of annual natural gas requirements in all sectors are close to those of twenty years ago, it can nevertheless be inferred that a sustained upturn in sectoral natural gas requirements in Ohio is not to be expected as long as the relative share of expenditures on energy resources continues to increase statewide; as long as the comparative advantage of the state's industrial base continues to deteriorate, and as long as the relative price per Btu of natural gas is not competitive with heating oil or electricity.

The general historical implications of the estimated model are consistent with the discussion of the sectoral behaviors of historical natural gas requirements presented in preceding sections. More precise quantifications of the relations between unemployment rates, weather conditions, or natural gas prices and historical requirements are under consideration at this time.

APPENDIX A

Table A-1. Allegheny Power System: Forecast of Electric Energy Demand (1000 MWH)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Percentage Difference (Utility Forecast vs. Actual)	ODOE Forecast (1982-1983)	Percentage Difference (ODOE Forecast vs. Actual)
July	2,683	2,673	-0.4	2,573	-4.1
August	2,626	2,791	6.3	2,567	-2.2
September	2,483	2,620	5.5	2,432	-2.1
October	2,600	2,799	7.6	2,551	-1.9
November	2,583	2,831	9.6	2,537	-1.8
December	2,968	3,132	5.5	2,875	-3.1
January	3,223	3,365	4.4	3,124	-3.1
February	2,761	2,935	6.3	2,704	-2.1
March	2,848	2,959	3.9	2,788	-2.1
April	2,508	2,737	9.1	2,433	-3.0
May	2,400	2,729	13.7	2,365	-1.5
June		2,685		2,392	

Sources: Form EIA-119M and the Ohio Department of Energy.

Table A-2. American Electric Power: Forecast of Electric Energy Demand (1000 MWH)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Percentage Difference (Utility Forecast vs. Actual)	ODOE Forecast (1982-1983)	Percentage Difference (ODOE Forecast vs. Actual)
July	7,202	6,913	-4.0	6,693	-7.1
August	6,987	7,136	-2.1	6,620	-5.3
September	6,987	6,562	-6.1	6,354	-9.1
October	6,733	6,811	1.2	6,115	-9.2
November	6,746	7,115	5.5	6,131	-9.1
December	7,484	7,911	5.7	6,924	-7.5
January	8,105	8,767	8.2	7,426	-8.4
February	6,915	8,012	15.9	6,465	-6.5
March	7,038	7,666	8.9	6,663	-5.3
April	6,250	6,887	10.2	5,797	-7.2
May	5,988	6,742	12.6	5,636	-5.9
June		6,767		6,094	

Sources: Form EIA-119M and the Ohio Department of Energy.

Table A-3. Cincinnati Gas and Electric: Forecast of Electric Energy Demand (1000 MWH)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Percentage Difference (Utility Forecast vs. Actual)	ODOE Forecast (1982-1983)	Percentage Difference (ODOE Forecast vs. Actual)
July	1,501	1,534	2.2	1,544	2.9
August	1,414	1,562	10.5	1,511	6.9
September	1,202	1,308	8.8	1,286	7.0
October	1,181	1,233	4.4	1,239	4.9
November	1,209	1,300	7.5	1,260	4.2
December	1,392	1,460	4.9	1,434	3.0
January	1,523	1,499	-1.6	1,548	1.7
February	1,294	1,353	4.6	1,326	2.5
March	1,296	1,407	16.3	1,339	3.3
April	1,147	1,242	8.3	1,185	3.9
May	1,214	1,323	9.0	1,244	2.5
June		1,463		1,412	

Sources: Form EIA-119M and the Ohio Department of Energy.

Table A-4. Cleveland Electric Illuminating: Forecast of Electric Energy Demand (1000 MWH)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Percentage Difference (Utility Forecast vs. Actual)	ODOE Forecast (1982-1983)	Percentage Difference (ODOE Forecast vs. Actual)
July	1,645	1,619	-1.6	1,376	-16.3
August	1,609	1,661	3.2	1,392	-13.5
September	1,485	1,474	-0.7	1,266	-14.7
October	1,522	1,577	3.6	1,294	-15.0
November	1,450	1,512	4.3	1,254	-13.5
December	1,496	1,693	13.2	1,334	-10.8
January	1,633	1,787	9.4	1,426	-12.7
February	1,468	1,585	8.0	1,281	-12.7
March	1,532	1,743	13.8	1,353	-11.7
April	1,419	1,575	11.0	1,231	-13.2
May	1,213	1,613	33.0	1,210	- 0.2
June		1,632		1,268	

Sources: Form EIA-119M and the Ohio Department of Energy.

Table A-5. Dayton Power and Light: Forecast of Electric Energy Demand (1000 MWH)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Percentage Difference (Utility Forecast vs. Actual)	ODOE Forecast (1982-1983)	Percentage Difference (ODOE Forecast vs. Actual
July	972	942	-3.1	989	1.7
August	934	948	1.5	956	2.4
September	833	847	1.7	857	2.9
October	852	890	4.5	875	2.7
November	889	923	3.8	911	2.5
December	993	1,037	4.4	1,009	1.6
January	1,133	1,108	-2.2	1,135	0.2
February	963	995	3.3	977	1.5
March	957	977	2.1	971	1.5
April	831	855	2.9	851	2.4
May	813	853	4.9	833	2.5
June		887		922	

Sources: Form EIA-119M and the Ohio Department of Energy.

Table A-6. Ohio Edison System:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Percentage Difference (Utility Forecast vs. Actual)	ODOE Forecast (1982-1983)	Percentage Difference (ODOE Forecast vs. Actual
July	2,143	2,157	0.7	2,001	-6.6
August	2,066	2,309	11.8	2,005	-3.0
September	1,956	2,078	6.2	1,860	-4.9
October	1,988	2,160	8.7	1,942	-2.3
November	1,932	2,090	8.2	1,904	-1.4
December	2,074	2,341	12.9	2,068	-0.3
January	2,247	2,468	9.8	2,219	-1.2
February	1,981	2,196	10.9	1,981	0.0
March	2,070	2,272	9.8	2,069	0.0
April	1,823	2,087	14.5	1,836	0.7
May	1,787	2,114	18.3	1,818	1.7
June		2,111		1,897	

Sources: Form EIA-119M and the Ohio Department of Energy.

Table A-7. Ohio Valley Electric Corporation: Forecast of Electric Energy Demand (1000 MWH)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Percentage Difference (Utility Forecast vs. Actual)
July	596	1,459	144.8
August	595	1,459	145.2
September	578	1,301	125.1
October	598	1,409	135.6
November	578	1,445	150.0
December	595	1,443	142.5
January	597	1,441	141.4
February	538	1,261	134.4
March	596	1,363	128.7
April	576	1,348	134.0
May	595	1,353	127.4
June		1,361	

Sources: Form EIA-119M and the Ohio Department of Energy.

Table A-8. Toledo Edison Company: Forecast of Electric Energy Demand (1000 MWH)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Percentage Difference (Utility Forecast vs. Actual	ODOE Forecast (1982-1983)	Percentage Difference (ODOE Forecast vs. Actual)
July	655	609	-7.0	650	-0.8
August	645	620	-3.9	661	2.5
September	592	588	-0.7	599	1.2
October	604	598	-1.0	631	4.5
November	605	631	4.3	625	3.3
December	656	655	-0.2	673	2.6
January	735	733	-0.3	738	0.4
February	638	701	9.9	652	2.2
March	670	709	5.8	671	0.1
April	590	633	7.3	589	-0.2
May	590	615	4.2	590	0.0
June		638		608	

Sources: Form EIA-119M and the Ohio Department of Energy.

Table A-9. Forecast of Ohio Electricity Demand-Residential Sector
(1000 MWH)

Month	Lower 95% Confidence Limit	Forecast (1982-1983)	Upper 95% Confidence Limit	Actual (1981-1982)	Percentage Difference Forecast vs. Actual
July	2,092.0	2,418.8	2,745.7	2,521.2	-4.1
August	2,105.5	2,459.7	2,813.9	2,370.1	3.8
September	1,903.6	2,270.4	2,637.1	2,197.2	3.1
October	1,597.8	1,976.7	2,355.5	1,960.3	0.8
November	1,764.5	2,155.1	2,545.7	2,112.9	2.0
December	2,275.9	2,677.9	3,079.9	2,702.2	-0.9
January	2,883.6	3,296.6	3,709.7	3,375.9	-2.3
February	2,618.1	3,041.9	3,465.8	3,106.1	-2.1
March	2,200.4	2,634.7	3,069.1	2,712.5	-2.9
April	1,838.3	2,283.0	2,727.6	2,392.7	-4.6
May	1,471.8	1,926.5	2,381.1	1,953.2	-1.4
June	1,442.8	1,947.3	2,451.8		

Sources: Ohio Electric Utility Institute and the Ohio Department of Energy.

Table A-10. Forecast of Ohio Electricity Demand-Commercial Sector (1000 MWH)

Month	Lower 95% Confidence Limit	Forecast (1982-1983)	Upper 95% Confidence Limit	Actual (1981-1982)	Percentage Difference Forecast vs. Actual
July	1,829.7	1,962.3	2,095.0	1,989.6	-1.4
August	1,814.4	1,959.3	2,104.2	1,906.0	2.8
September	1,737.9	1,887.9	2,038.0	1,849.5	2.1
October	1,511.4	1,666.4	1,821.4	1,621.2	2.9
November	1,489.0	1,648.7	1,808.5	1,581.2	4.3
December	1,628.7	1,793.2	1,957.6	1,733.3	3.5
January	1,811.5	1,980.4	2,149.4	1,955.4	1.3
February	1,761.1	1,934.4	2,107.8	1,872.6	3.3
March	1,630.2	1,807.9	1,985.6	1,781.2	1.5
April	1,531.1	1,712.9	1,894.8	1,666.8	2.8
May	1,479.9	1,665.9	1,851.9	1,632.7	2.0
June	1,616.0	1,817.0	2,018.0		

Sources: Ohio Electric Utility Institute and the Ohio Department of Energy.

Table A-11. Forecast of Ohio Electricity Demand-Industrial Sector
(1000 MWH)

Month	Lower 95% Confidence Limit	Forecast (1982-1983)	Upper 95% Confidence Limit	Actual (1981-1982)	Percentage Difference Forecast vs. Actual
July	2,777.3	3,075.1	3,373.0	3,898.7	-21.1
August	2,841.3	3,206.0	3,570.8	4,011.1	-20.1
September	2,779.6	3,200.8	3,622.0	3,843.9	-16.7
October	2,787.0	3,257.9	3,728.8	3,875.3	-15.9
November	2,638.1	3,154.0	3,669.8	3,617.7	-12.8
December	2,467.2	3,024.4	3,581.6	3,236.0	-6.5
January	2,473.0	3,068.7	3,664.3	3,197.7	-4.0
February	2,420.2	3,052.0	3,683.8	3,285.7	-7.1
March	2,526.5	3,192.5	3,858.4	3,428.8	-6.9
April	2,424.0	3,122.5	3,820.9	3,228.9	-3.3
May	2,415.7	3,145.3	3,874.8	3,217.5	-2.2
June	2,377.2	3,140.3	3,903.5		

Sources: Ohio Electric Utility Institute and the Ohio Department of Energy.

Table A-12. Forecast of Ohio Electricity Demand-All Sectors (1000 MWH)

Month	Lower 95% Confidence Limit	Forecast (1982-1983)	Upper 95% Confidence Limit	Actual (1981-1982)	Percentage Difference Forecast vs. Actual
July	7,211.1	7,820.7	8,430.4	8,810.8	-11.2
August	7,314.5	8,019.2	8,723.9	8,669.6	-7.5
September	6,977.7	7,766.0	8,554.4	8,298.9	-6.4
October	6,464.8	7,328.7	8,192.7	7,877.8	-7.0
November	6,393.7	7,327.2	8,260.6	7,759.3	-5.6
December	6,855.5	7,853.6	8,851.7	8,167.2	-3.8
January	7,603.0	8,661.8	9,720.6	9,036.0	-4.1
February	7,331.2	8,447.4	9,563.6	8,760.0	-3.6
March	6,911.9	8,082.7	9,253.6	8,414.2	-3.9
April	6,184.2	7,407.3	8,630.3	7,727.3	-4.1
May	5,791.5	7,064.5	8,337.6	7,212.3	-2.0
June	5,788.0	7,169.4	8,550.8		

Sources: Ohio Electric Utility Institute and the Ohio Department of Energy.

APPENDIX B

Table B-1. Cincinnati Gas and Electric: Forecast of Natural Gas Requirements
(MMCF)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1982-1983)	Forecast % Change (ODOE Forecast vs. Actual)
June	3,814	3,958	3.78	3,310	-13.21
July	3,504	3,958	12.96	3,257	-7.05
August	3,589	3,951	10.09	3,544	-1.25
September	3,692	4,091	10.81	3,658	-0.92
October	5,881	5,644	-4.03	5,895	0.24
November	8,490	8,855	4.30	8,179	-3.66
December	12,990	13,072	0.63	12,387	-4.64
January	15,600	12,620	-19.10	14,401	-7.69
February	12,364	12,199	-1.33	13,157	6.41
March	9,683	10,903	12.60	11,111	14.75
April	7,009	6,936	-1.04	7,888	12.54
May	3,236	5,308	64.03	4,200	29.79

Source: SG-2. Forms of the reporting utility and the Ohio Department of Energy.

Table B-2. Columbia Gas of Ohio: Forecast of Natural Gas Requirements
(MMCF)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Forecast % Change (Utility Forecast vs. Actual	ODOE Forecast (1982-1983)	Forecast % Change (ODOE Forecast vs. Actual)
June	14,475	12,046	-16.78	10,217	-29.42
July	13,489	12,046	-10.70	10,823	-19.76
August	13,532	13,275	-1.90	12,420	-8.22
September	14,758	14,554	-1.38	13,790	-6.56
October	22,794	20,433	-10.36	22,342	-1.98
November	30,307	31,138	2.74	30,161	-0.48
December	42,334	43,053	1.70	41,500	-1.97
January	54,252	49,642	-8.50	51,080	-5.85
February	42,516	41,342	-2.76	43,892	3.24
March	35,887	34,913	-2.71	36,480	1.65
April	26,575	24,803	-6.67	26,979	1.52
May	13,478	18,207	35.09	15,816	17.35

Source: SG-2. Forms of the reporting utility and the Ohio Department of Energy.

Table B-3. Dayton Power and Light Forecast of Natural Gas Requirements (MMCF)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1982-1983)	Forecast % Change (ODOE Forecast vs. Actual)
June	2,130	1,827	-14.23	1,674	-21.41
July	1,752	1,827	4.28	1,595	-8.96
August	1,895	1,906	0.58	1,762	-7.02
September	2,053	2,001	-2.53	2,055	0.10
October	3,046	3,481	14.28	3,218	5.65
November	4,818	5,427	12.64	5,285	9.69
December	7,937	7,451	-6.12	8,020	1.05
January	10,311	8,770	-14.95	10,424	1.10
February	10,048	9,079	-9.64	10,004	-0.44
March	6,568	7,248	10.35	7,219	9.91
April	5,742	5,479	-4.58	5,550	-3.34
May	2,550	3,269	28.20	2,900	13.73

Source: SG-2. Forms of the reporting utility and the Ohio Department of Energy.

Table B-4. East Ohio Gas: Forecast of Natural Gas Requirements (MMCF)

	Actual Demand (1981-1982)	Utility Forecast (1982-1983)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1982-1983)	Forecast % Change (ODOE Forecast vs. Actual)
June	22,104	21,861	-1.10	18,394	-16.78
July	20,875	21,861	4.72	17,362	-16.83
August	21,048	21,688	3.04	18,827	-10.55
September	22,834	23,647	3.56	20,775	-9.02
October	30,241	29,867	-1.24	28,531	-5.65
November	30,892	32,568	5.43	32,463	5.09
December	42,827	43,870	2.44	44,219	3.25
January	56,187	48,202	-14.21	53,595	-4.61
February	43,901	42,205	-3.86	45,891	4.53
March	38,403	37,103	-3.39	38,547	0.37
April	34,635	33,013	-4.68	33,173	-4.22
May	22,174	28,480	28.44	23,143	4.37

Source: SG-2. Forms of the reporting utility and the Ohio Department of Energy.

Table B-5. Independent Forecast of Ohio Natural Gas End User Requirements-Residential Sector (MMCF)

Month	Lower 95% Confidence Limit	Forecast (1982-1983)	Upper 95% Confidence Limit	Actual (1981-1982)	Forecast Percentage Change
June	9,770	10,770	11,770	11,236	-4.15
July	6,950	7,950	8,950	8,598	-7.54
August	6,400	7,400	8,400	7,690	-3.77
September	6,200	8,000	9,800	9,085	-11.94
October	12,962	16,962	20,962	18,605	-8.83
November	26,000	31,000	36,000	28,567	8.52
December	43,000	49,000	55,000	49,705	-1.42
January	57,394	67,394	77,394	69,255	-2.69
February	52,500	62,500	72,500	67,151	-6.93
March	41,845	51,845	61,845	51,411	0.84
April	29,000	37,000	45,000	39,529	-6.40
May	14,471	18,471	22,471	16,622	11.12

Table B-6. Independent Forecast of Ohio Natural Gas End User Requirements-Commercial Sector (MMCF)

Month	Lower 95% Confidence Limit	Forecast (1982-1983)	Upper 95% Confidence Limit	Actual (1981-1982)	Forecast Percentage Change
June	4,500	4,600	4,700	4,935	-6.79
July	3,100	3,900	4,700	3,962	-1.56
August	2,870	3,670	4,470	3,822	-3.98
September	3,100	3,900	4,700	4,279	8.86
October	6,250	7,250	8,250	7,818	-7.27
November	12,150	12,450	12,750	12,342	0.88
December	18,000	21,000	24,000	21,544	-2.53
January	25,811	28,811	31,811	29,551	-2.50
February	25,281	28,281	31,281	29,093	-2.79
March	19,482	22,482	25,482	22,342	0.63
April	13,663	16,663	19,663	16,575	0.53
May	5,000	8,000	11,000	6,910	15.77

Table B-7. Independent Forecast of Ohio Natural Gas End User Requirements-Industrial Sector (MMCF)

Month	Lower 95% Confidence Limit	Forecast (1982-1983)	Upper 95% Confidence Limit	Actual (1981-1982)	Forecast Percentage Change
June	11,000	16,000	21,000	22,415	-28.62
July	10,500	15,500	20,500	19,841	-21.88
August	13,000	18,000	23,000	20,113	-10.51
September	15,500	19,500	23,500	20,435	-4.58
October	17,500	21,500	25,500	22,316	-3.66
November	18,200	22,200	26,200	23,029	-3.60
December	22,000	26,000	30,000	25,308	2.73
January	24,500	28,500	32,500	29,039	-1.86
February	23,600	27,600	31,600	28,676	-3.75
March	22,900	26,900	30,900	25,915	3.80
April	19,800	23,800	27,800	22,051	7.93
May	17,500	21,500	25,500	17,575	22.33

Table B-8. Independent Forecast of Ohio Natural Gas Requirements-Total-All-Sectors (MMCF)

Month	Lower 95% Confidence Limit	Forecast 1982-1983)	Upper 95% Confidence Limit	Actual (1981-1982)	Forecast Percentage Change
June	32,370	38,370	44,370	44,672	-14.11
July	30,350	36,350	42,350	41,762	-12.96
August	34,570	39,570	44,570	42,161	-6.15
September	37,400	43,400	49,400	45,598	-4.82
October	56,712	62,712	68,712	65,008	-3.53
November	74,150	80,150	86,150	78,208	2.48
December	102,500	110,500	118,500	110,901	-0.36
January	117,705	129,705	141,705	142,486	-8.97
February	106,381	118,381	130,381	113,794	4.03
March	89,227	101,227	113,227	95,023	6.53
April	64,463	74,463	82,463	77,302	-3.67
May	42,280	48,280	54,280	43,416	11.20

Table B-9. Projected Supply and Demand for Eight Major Ohio Natural Gas Utilities (MMCF)

COMPANY: CINN. GAS & ELEC.

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	6/82	7/82	8/82	9/82	10/82	11/82	12/82	1/83	2/83	3/83	4/83	5/83	SUMMER	WINTER	YEAR
SUPPLY	4215	4050	4077	4091	5644	8855	13072	12620	12199	10903	6936	5308	34321	57649	91970
DEMAND	4215	4050	4077	4091	5644	8855	13072	12620	12199	10903	6936	5308	34321	57649	91970
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: COLUMBIA GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	6/82	7/82	8/82	9/82	10/82	11/82	12/82	1/83	2/83	3/83	4/83	5/83	SUMMER	WINTER	YEAR
SUPPLY	15577	13563	15215	15712	23821	31138	43053	49642	41342	34913	24803	18207	126898	200088	326986
DEMAND	15577	13563	15215	15712	23821	31138	43053	49642	41342	34913	24803	18207	126898	200088	326986
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: DAYTON POWER & LIGHT

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	6/82	7/82	8/82	9/82	10/82	11/82	12/82	1/83	2/83	3/83	4/83	5/83	SUMMER	WINTER	YEAR
SUPPLY	2164	1802	1881	1995	3463	5427	7451	8770	9079	7248	5479	3269	20053	37975	58028
DEMAND	2164	1802	1881	1995	3463	5427	7451	8770	9079	7248	5479	3269	20053	37975	58028
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: EAST OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	6/82	7/82	8/82	9/82	10/82	11/82	12/82	1/83	2/83	3/83	4/83	5/83	SUMMER	WINTER	YEAR
SUPPLY	24300	22151	22059	23250	29705	32125	43054	47279	41439	37103	33013	28480	182958	201000	383958
DEMAND	24300	22151	22059	23250	29705	32125	43054	47279	41439	37103	33013	28480	182958	201000	383958
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table B-9. Projected Supply and Demand for Eight Major Ohio Natural Gas Utilities (MMCF)
(Cont'd)

COMPANY: NATIONAL GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	6/82	7/82	8/82	9/82	10/82	11/82	12/82	1/83	2/83	3/83	4/83	5/83	SUMMER	WINTER	YEAR
SUPPLY	1150	1195	1195	1160	1160	1220	1430	1510	1410	1475	1300	1160	8320	7045	15365
DEMAND	1026	1007	1043	829	829	950	1035	1175	1280	1100	976	1035	6745	5540	12285
DEFICIENCY	-124	-188	-152	-331	-331	-270	-395	-335	-130	-375	-324	-125	-1575	-1505	-3080
% DEFICIENCY	-12.1%	-18.7%	-14.6%	-39.9%	-39.9%	-28.4%	-38.2%	-28.5%	-10.2%	-34.1%	-33.2%	-12.1%	-23.4%	-27.2%	-25.1%

COMPANY: OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	6/82	7/82	8/82	9/82	10/82	11/82	12/82	1/83	2/83	3/83	4/83	5/83	SUMMER	WINTER	YEAR
SUPPLY	735	609	658	939	1256	744	1013	1084	1064	853	652	569	5418	4758	10176
DEMAND	432	403	367	283	497	744	1013	1084	1065	853	0	569	2551	4757	7310
DEFICIENCY	-303	-206	-291	-656	-759	0	0	0	1	0	-652	0	-2867	1	-2866
% DEFICIENCY	-70.1%	-51.1%	-79.3%	-231.8%	-152.7%	0.0%	0.0%	0.0%	0.1%	0.0%	999.9%	0.0%	-112.4%	0.0%	-39.2%

COMPANY: RIVER GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	6/82	7/82	8/82	9/82	10/82	11/82	12/82	1/83	2/83	3/83	4/83	5/83	SUMMER	WINTER	YEAR
SUPPLY	172	143	153	220	315	470	629	777	719	589	398	300	1701	3184	4885
DEMAND	172	143	153	220	315	470	629	777	719	589	398	300	1701	3184	4885
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: WEST OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	6/82	7/82	8/82	9/82	10/82	11/82	12/82	1/83	2/83	3/83	4/83	5/83	SUMMER	WINTER	YEAR
SUPPLY	570	442	512	552	1009	1319	1666	2060	1944	1422	1097	710	4892	8411	13303
DEMAND	570	442	512	552	1009	1319	1666	2060	1944	1422	1097	710	4892	8411	13303
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%